

THE
NEW JERSEY MEDICAL REPORTER.

VOL. IV. TENTH MONTH (OCTOBER), 1850. No. 1.

DISTRICT MED. SOCIETY FOR THE COUNTY OF MERCER.

THE FOOD AND THE TEETH.

OBSERVATIONS

On the Inorganic Constituents of the Food of Children, as connected with the Decay of the Teeth, and the Physical Constitution of Women in America.

Read before the "District Medical Society of the County of Mercer," 23d July, 1850.
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THE subject to which I have the pleasure of directing your attention is, not only in a physiological point of view, one of interest, but in its application to the preservation of health—the tendency to improve the general condition and physical constitution of the human family inhabiting this great continent—a continent abounding, as it does, in all the productions which a Bountiful Creator, in his beneficence, bestows on man—cannot be otherwise than of great and paramount importance.

At a period somewhat now remote, the celebrated naturalist Buffon, alluding to the animals of this continent, advanced the following opinions:—

- 1st. That the animals common both to the Old and New Worlds are smaller in the latter.
- 2d. That those belonging to the New are on a smaller scale.
- 3d. That those which have been domesticated in both, have degenerated in America.
- 4th. That, on the whole, it exhibits fewer species.

These opinions, Mr. Jefferson, in his "Notes on Virginia," undertook, and it is generally considered successfully, to controvert; yet, however repugnant to the general idea the opinion as to the tendency of those animals which have been domesticated in America from other countries to degenerate, it is an undeniable and much to be regretted fact, that the human family, and more particularly the female portion of that family, have declined in the vigor and strength of their physical constitution.

I wish not to be misunderstood: I say it is a melancholy fact, too well known to the observant physiologist, that increase of strength, and development of frame, have not been attained by the intermarrying of members of the human family of different nations on this continent; but the reverse is too observable: the physical frame of the female sex has degenerated—calling loudly for the aid of science to arrest an evil of so much magnitude.

Let us for a moment contemplate the female form, as seen on this broad continent. In no country in the world are children more fair and beautiful; and as the young girl grows up to womanhood, we see in her a full realization of that being forming in the hands of Divinity, portrayed by the poet, as seen by Adam in his dream:—

"Under his forming hands, a creature grew,
Manlike, but different sex; so lovely fair,
That what seemed fair in all the world, seemed now
Mean, or in her summed up, in her contained,
And in her looks;”—

We see this young and lovely being—the forehead well developed—the countenance, rather elongated, relieved of the harsher outline of some of the European nations—with fragile form, and small, yet well-developed bust, flitting for a few short years among us, and then—yes, then there comes a change. Ere five and twenty summers pass, this flower begins to fade—the rounded form shrinks—the bloom of health decays; and if she escapes the fell destroying angel's death-like grasp, a wreck of former self remains.

Why should this be so ? The robust of other countries come to this continent—they live in comfort—their food is excellent in quality—their progeny is like themselves—but even now, in the very first generation, does the degenerating process make itself manifest—the teeth begin to decay ; and girls, while yet children, have to visit the dentist to have them cleansed, scraped, and plugged.

Now this brings us at once to the head and front of our subject ; and if we can point out the first cause of this decay of what should be as strong as adamant, it may be the means of helping us in our investigation. That there is something radically wrong in our system of rearing the young, to which this misfortune is in a great measure owing, I am free to confess, is my firm opinion. I would indeed it were in my power, in pointing out the evil, to be as successful in detailing the cause, that we may apply the remedy. Still, although perhaps unable to accomplish all I wish, my observations may not be without their weight, and induce others, more observant, more scientific, and more competent to the task, to follow up an investigation so fraught with advantages to our fellow beings.

It is certainly to be deplored that the females of this continent, descendants of European parents, should be so much afflicted with caries of the teeth—the decay of parts formed of substances which enter into the composition of some of our hardest minerals—marble, bone-earth and fluor-spar ; and this decay unfortunately occurs in early life—in girls yet at school ; and many a young woman, ere she has attained a marriageable age, has had to replace the natural with the unnatural, though more enduring enamel of the artist's formation. This ought not to be : God made all mankind alike ; in no portion of the earth are nations found who lose their hands, or feet, or tongue, or eyes ; and there can be no cause why the inhabitants of this land should lose their teeth. It is not so in the olden countries from whence the progenitors of the present race have come ; nor is it so in the West India Islands, which may almost

be considered as part of this great continent. So excellent is the structure of the teeth of savage nations, that some tribes in Africa, I think the Mocoës and Mundingoës, file all the front teeth, so that they shall be separated and form sharp points, the better to tear the uncooked animal food.

One cause of this affliction is, in the mind of many, attributed to the great and sudden changes of temperature experienced on this continent—the thermometer rising and falling 20, 30, and even 40 degrees in twelve hours. But if attributable to these sudden changes, we know that sudden expansion by means of heat, or sudden contraction by means of cold, causes the particles of which bodies are composed to tear themselves asunder; consequently to crack, break, and fall in pieces. But this is not the case with the teeth of our females; a caries or decay commences most generally in the side of the tooth, extending to the enamel, which is sometimes involved in the destruction, at other times, it is left a crust or shell to snap and break off in small pieces, when unable to resist the pressure of whatever may be placed against it; besides, the teeth are for the most part sheltered from these sudden changes, and kept at a temperature nearly amounting to blood heat at all seasons. I do not think we can place the general destruction of the teeth, and consequent affliction of the females of America, to this cause. I fear we must rather look for it to constitutional weakness, and this constitutional weakness to a deficiency of the inorganic or earthy constituents being taken into the system, more particularly at an early period of life.

If I am correct in this opinion, and reason, philosophy, and a thorough examination of physiological facts in both the animal and vegetable economy, tend far to bear out these views, then if we would try and correct this lamentable state of things, let us commence at the very beginning, and make ourselves acquainted by examining the structure and composition of the teeth, and then we shall be more

able to understand what is required to aid nature in their formation and consequent preservation.

First, then, let us make ourselves acquainted with the structure and composition of the teeth. The teeth are nearly allied to bone in structure; both having earthy deposits, intermixed with fibres and cells of gelatine, which, by consolidation, gives form and strength—in the case of bone, to bear the weight of the various parts, and afford protection to the different organs of the body; and in the case of teeth, to cut and grind the food required for the formation, support, and reparation of its various parts.

Now, teeth are composed of three different substances, and these three are disposed according to the purposes required of them; they are, *cementum* or *crusta petrosa*, *dentine* (known as ivory in the tusk of the elephant), and *enamel*. The *cementum* or *crusta petrosa*, corresponds in all especial particulars with bone; possessing its characteristic *lacunæ* or small cavities, and being traversed by vascular medullary canals, whenever it occurs of sufficient thickness; it is the first covering of the young teeth, and may be said to invest the fang of the tooth which enters the alveolar process of the jaw. The *dentine*, or ivory, consists of a firmer substance, in which inorganic or mineral matter predominates, though to a less degree than in *enamel*. It is traversed by a vast number of very fine cylindrical, branching, wavy tubuli, which commence at the pulpy-cavity, and radiate towards the surface. The diameter of these tubuli, at their largest part, averages about one 10,000th of an inch: their smallest are immeasurably fine; so much so, that they cannot possibly receive blood, but it is surmised that, like the canaliculi of bone, they imbibe fluid from the vascular lining of the pulp-cavity, which aids in the nutrition of the tooth. The *enamel* is composed of solid prisms or fibres, about the one 5,600th of an inch in diameter, arranged side by side, and closely adherent to each other; their length corresponds with the thickness of the layer which they form; and the

two surfaces of this layer present the ends of the prism, which are usually more or less hexagonal. In the perfect state, the enamel contains but an extremely minute quantity of animal matter. In the centre of the tooth is the soft pulpy cavity, which affords a bed for the blood-vessels and nerves which supply it with life and sensibility.

I shall not enter more minutely into the structure of the teeth, but may briefly state, that like all other structures of the animal body, the component parts are derived and deposited from the blood, by that mysterious and incomprehensible power that selects and deposits the necessary constituents in the formation of the several portions, according to the use required.

Now, in the composition of the teeth, we have first the division into organic and inorganic or earthy matter; and we find that the several substances which enter into the structure of the teeth, differ chiefly as to the earthy matter contained in each.

Chemical analysis of the incisors, or front teeth of man, show that they contain in one hundred parts of each, as follows:—

	Cementum.	Dentine.	Enamel.
Organic Matter,	29.27	28.70	3.59
Earthy Matter,	70.73	71.30	96.41
	100.	100.	100.

These proportions will occasionally differ; in some individuals the organic constituents having less than here stated, amounting in the dentine only to 21. The analysis of bone, however, gives a much larger proportion, viz.:

Organic Matter,	32.56
Earthy Matter,	67.44
	100.

Let us now take a more complete analysis, showing what earthy constituents enter into their composition. Analysis of the molar or grinding teeth of man, and of the bones of

the arm and leg of a man of forty, show the following proportions :—

	Dentine.	Enamel.	Bone.
Inorganic Matter:—			
Phosphate of Lime, with traces of Fluete of Lime,	66.72	89.82	54.61
Carbonate of Lime,	3.36	4.37	9.41
Phosphate of Magnesia,	1.08	1.34	1.07
Salts, &c.	.83	.88	2.35
Organic Matter,	28.01	3.59	32.56
	100.	100.	100.

Thus we see the very great proportion of certain earths that enter into the structure of the teeth and bone of man, the chief substance being the phosphate of lime, familiarly known as bone-earth. We find, too, that whereas in ordinary bone the phosphate of lime constitutes only 54 parts in 100, in the enamel of the teeth it is nearly 90 parts in 100—while the carbonate of lime in bone amounts to 9.41, in the enamel of teeth it is only 4.37; the enamel being literally almost a mineral in substance, having only 3.59 parts of animal matter in 100.

Thus the teeth to be strong and durable, require a large quantity of earthy ingredient, particularly *lime*, to enter into their composition. Let us inquire whence it is derived; and for this we must examine the blood.

To allow of such deposits from the blood, it is first necessary that they should be held in solution in that fluid. You are no doubt aware that the blood circulating to every portion of the body by means of the heart forcing a certain quantity to the extent say of 2 oz. at every contraction, into the aorta or great canal leading from the left ventricle, and which, dividing and subdividing into innumerable branches, are made to ramify to every part of the body, until the extreme branches end in capillary tubes or vessels, the calibre of which is so small as not to allow the red globules or corpuscles of the blood to enter them, but which allows the serous portion to traverse every portion of the organized structure, holding in solution all those constituents necessary and requisite for the formation and reparation of its several parts.

In the serous portion of the blood, then, we find contained the constituents required for the composition of bone and teeth—analysis of 1000 parts of healthy human blood giving, according to M. Lecanu, the following proportions:

Water,	780.15	785.58
Fibrine,	2.10	3.57
Albumen,	65.09	69.41
Coloring matter,	133.00	119.63
Crystallizable fat,	2.43	4.30
Fluid fat,	1.31	2.27
Extractive matter, uncertain,	1.79	1.92
Albumen in combination with Soda,	1.26	2.01
Chlorides of Sodium and Potassium ; Carbonates, Phosphates and Sul- phates of Potash and Soda,	8.37	7.30
Carbonates of Lime and Magnesia ; Phosphates of Lime, Magnesia and Iron ; Per-Oxide of Iron,	2.10	1.42
Loss,	2.40	2.50
	1000.	1000.

We see by this table, if we subtract or take away the proportion of water amounting to 780 parts, and the coloring matter amounting to 133, we shall leave scarcely 90 parts of organic and earthy material, the salts and earths forming upwards of a 10th—the salts being in proportion to the earths as 4 to 1.

Having then traced the constituent portions of the bones and teeth to be in the blood, the next consideration is, whence are they derived?

Before entering on this subject farther, let us for a moment take a broader and more comprehensive view of what must be (most interesting to mothers, and) of great consequence to the well-being of the infant generation, in a short time—in a very few years to become in their turn the mothers and fathers of another generation.

The question then presents itself, as to what is the nourishment or food best adapted and necessary to the wants of an infant, that the foundation may be laid for a strong frame and vigorous constitution—for here, we must recollect, is the starting point in by far the majority of instances. We know that in some cases disease is hereditary—that

the offspring unfortunately inherits from the parent constitutional defects; but we also know that more misery, suffering, and constitutional derangement, are entailed on children by want of care and improper food in the first years of life, by which their hopes of health are blasted, and they are doomed to struggle through a weary life, to be hurried at last into a premature grave.

Now, that the frame—that is, the bones, muscles and other portions of the infant—may be fully developed, it is necessary that it should be supplied with nourishment, containing all the constituents required for this important undertaking. And this nourishment, by the all-wise ordering of Providence, is contained in the milk secreted from the mother's bosom.

The infant is entirely dependent on the nourishment derived from its mother, and nature has wisely ordained that the secretion from the mother is its very best food; for we find in the composition of milk—that is, healthy milk, derived from healthy blood—all those ingredients we have hitherto traced as requisite in the formation of the bones and teeth, and not only these, but every constituent required for the life and growth of the individual;—milk containing the albuminous, saccharine, oleaginous, saline, and earthy compounds requisite and necessary for the health, strength, and development of the infant child.

How thankful ought we to be to the all-wise and bountiful Giver of all good, for this beneficent, this wonderful provision in nature, by which there shall be secreted from the mother, a fluid so important, having properties blended in intimate connection, to afford the requisite substances for the support, growth and development of her offspring.

An analysis of cow's milk gives the following proportions of the various constituents; that of human milk is not so elaborate, but contains the average of observations taken at fourteen different times from the same individual, by Simon.

Cow's milk by M. Haileon.		Woman's milk by Simon.	
Water,	873.00	Water,	853.6
Butter,	30.00	Butter,	25.3
Caseine,	48.20	Caseine,	34.3
Milk Sugar,	43.90	Milk Sugar and Extractive	
Phosphate of Lime,	2.31	Matter,	48.2
Phosphate of Magnesia,	.42	Fixed Salts,	2.3
Phosphate of Iron,	.07		
Chloride of Potassium,	1.44		
Chloride of Sodium,	.24		
Soda in connection with Caseine,	.42		
	1000.	Maximum of 11 observations.	Minimum of 11 observations.
		Butter,	54.0 8.0
		Caseine,	45.2 10.6
		Sugar & Extractive Matter,	62.4 39.2
		Salts,	2.7 1.6

Now although these amounts will no doubt vary, under every variety of circumstances, according to the *health, exercise, passions, and food* of the mother, yet they show what I particularly wish to impress on your minds, that healthy milk contains all the requisites for the nourishment of the infant—but then it must be *healthy* milk, secreted from healthy blood, and that blood must derive these ingredients from the *food* consumed, otherwise they will be taken up from the structures of the body, and hence the havoc made in nursing females when a due allowance of proper aliment is withheld, and the shrunken body of the famished mother is drained to the last drop, to supply the cravings of the death-like and impoverished offspring.

I have said that the composition of milk in quality and quantity, will vary and depend on circumstances. Now the mental state exerts a surprising influence on this secretion, and much more than is usually supposed. It may not be irrelevant to mention a few of the cases recorded in our journals,* of the influence of strong mental excitement on this secretion.

“A carpenter fell into a quarrel with a soldier billeted in his house, and was set upon by the latter with his drawn sword. The wife of the carpenter, at first, trembled from

* From Carpenter's Physiology.

fear and terror, and then suddenly threw herself furiously between the combatants, wrested the sword from the soldier's hand, broke it in pieces, and threw it away. During the tumult, some neighbors came in and separated the men. While in this state of strong excitement, the mother took up her child from the cradle, where it lay playing, and in the most perfect health, never having had a moment's illness; she gave it the breast, and in so doing, sealed its fate. In a few minutes the infant left off sucking, became restless, panted, and sank dead upon its mother's bosom. The physician, who was instantly called in, found the child lying in the cradle, as if asleep, and with its features undisturbed; but all his resources were fruitless. It was irretrievably gone."

"A lady having several children, of which none had manifested any particular tendency to cerebral disease, and of which the youngest was a healthy infant a few months old, heard of the death of the infant child of a friend residing at a distance, with whom she had been on terms of close intimacy, and whose family had increased cotemporaneously with her own. The circumstance naturally made a strong impression on her mind, and she dwelt upon it the more, perhaps, as she happened at that period to be separated from the rest of her family, and to be much alone with her babe. One morning shortly after having nursed it, she laid it in its cradle, asleep and apparently in perfect health; her attention was shortly attracted to it by a noise, and on going to the cradle, she found her infant in a convulsion, which lasted for a few minutes, and left it dead."

"A mother had lost several children in early infancy from a convulsive disorder. One infant, however, survived the usual fatal period; but whilst nursing him one morning, she had been strongly dwelling on the fear of losing him also, although he appeared a very healthy child. In a few minutes after the infant had been transferred into the arms of the nurse, and while she was urging her mistress to take a more cheerful view, directing her attention

to his thriving appearance, he was seized with a convulsion-fit, and died almost instantly."

These are interesting cases, and tend to show the great influence the mental affections exert on the secretion of milk, in rendering it deleterious in quality, and unwholesome to the infant.

Returning then to our subject, you will observe by the analysis, that cow's milk differs from that of woman in the proportions of some of the constituents, that it abounds more in butter, but particularly in caseine, or cheese; and on the other hand, that human milk abounds more in the saccharine principle, or sugar of milk. Now this points out a circumstance from which great benefit may be derived. It is of very frequent occurrence that infants are deprived of the natural nourishment of the mother, and diverse opinions are given relative to the food of infants by persons who really know very little about the matter; one recommends a milk diet, another that the infant must be fed upon starch and sugar.

Now, to enable the infant to receive a nourishment in every respect similar to the mother, the knowledge of the various proportions which we obtain by chemical analysis, enables us to rectify and produce milk very analogous to human milk from that of the cow, by diluting it with water in the proportion of about half as much again; that is to a pint of milk should be added half a pint of water that has been boiled, which will reduce the cheese principle to the proper proportion; add a small portion of cream to restore the proportion of butter, and then add sugar until the whole is distinctly sweetened, and we have a compound in every respect similar to the milk from the human breast.

To understand the subject of nutrition, allow me to explain to you, that food ought to, or must embody two great principles; one to nourish, the other to give heat to the body. And food, when consumed, is applied to one or the other of these purposes. Now, in the process of digestion, the constituents of the food are separated, and arranged in three classes.

1st. All that portion derived from animal food, eggs, the curd of milk, the gluten or adhesive portion of wheat and other grain, and whatever in animal or vegetable food can be rendered into *Albumen*—of which the best example that can be offered in illustration is the *white of egg*, which is in reality nearly pure albumen—and the principle is therefore called *Albuminous*.

2d. All that portion of the food derived from vegetables, starch, sugar, &c., that can be converted into *sugar* in the process of digestion. This principle is, therefore, called *saccharine*.

3d. All the fat, butter, oil, &c., which, when deprived of the other substances, is left in the state of *oil*, and therefore called *oleaginous*.

Now, of these three the *albuminous* is the *nutrient*, and the *saccharine* and *oleaginous* the *calorifacient*, or heat giving; and chemical analyses show that they vary in composition.

	ALBUMEN.		SACCHARINE.			OLEAGINOUS.	
	Eggs.	Wheat.	Starch,	Sugar	Sugar	Cane	Fat.
Carbon,	55.000	55.01	44.40	37.29	40.00	42.301	78.996
Hydrogen,	7.073	7.23	6.18	6.84	6.61	6.384	11.700
Nitrogen,	15.920	15.92					
Oxygen,			49.42	55.87	52.93	51.315	9.304
Sulphur,	22.007	21.84					
Phosphorus,							

You will observe that the *albuminous* or *nutritive* differs from the *saccharine* and *oleaginous*, in containing nitrogen, and sulphur and phosphorus, with carbon, hydrogen and oxygen, while the latter contains only carbon, hydrogen and oxygen—nitrogen being required in those compounds which give strength and formation to the frame.

Now the *albuminous*, or *nutritive*, being that portion which affords nourishment to the body, contains those constituents required in the first place for the formation and giving strength to the different portions of the body, and when fully developed, of repairing the general waste continually going on in the system, whether from the usual

wear and tear, fractured bones, or the ravages of disease. And the saccharine and oleaginous—the calorifacient or heat-making—to keep up a continual supply of fuel as it were, that the body may be kept of a regular and proper temperature; for you are no doubt aware that there is a continual supply of carbon, or, in more simple language, of charcoal, required to keep up the natural temperature of the body; and what is not required for immediate use is stored away in the form of fat, to be called into action as occasion requires.

We have seen in the analysis of milk, that that fluid contains butter, cheese, and sugar; consequently we can understand how an infant can thrive so well upon it—the cheese or caseine* of the milk, containing the nitrogenized or nutrient principle, which together with the earths and salts contained in the milk, goes to form the bones, muscles and the different tissues of the body—the sugar, which we have seen by the analysis contains a large quantity of carbon in its composition, going to keep up the temperature of the infant, while the butter, in the nature of fat, is stored away in a healthy infant, filling up every vacant interstice, causing a roundness and plumpness, the pride and joy of the happy parent.

Now let us mark the difference of the babe that has been denied a milk diet, and is doomed by ignorance to be fed on starch and sugar. You will recollect that these two substances were composed of carbon, hydrogen and oxygen only. By a process of digestion which I need not here enter into, such food is converted into sugar, the carbon of which becomes the fuel by which the temperature of the body is kept up—there being no principle

	Analysis of Caseine from fresh milk.	Albuminous substances found in whey after coagulation with an acid.
Carbon,	54.825	54.96
Hydrogen,	7.153	7.15
Nitrogen,	15.623	15.89
Oxygen, {	22.394	21.73
Sulphur, {		0.36

in the food to give albumen, there is nothing taken into the stomach upon which the gastric fluid can expend its solvent powers, the infant is, therefore, much troubled with acid eructations, and the stomach becomes weak and irritable. The want of the nutritive constituent of the food, and the earths and salts, &c., necessary and essential for the formation of the bones and teeth, show a lamentable deficiency in the child's development, and there being no fatty matter to be laid up, the body is emaciated, the countenance is ghastly, the flesh and integuments hang soft and flabby over the bones, no absolute disease can be detected, the child is ravenous and hungry, and the unfortunate babe descends to the tomb a spectre and an object of the most pitiful description. This is no fancy sketch, but one too often met with in the ordinary walks of professional life. And why is it so? Simply because the composition of the human frame, the component parts of our food requisite to produce that frame, and the process of digestion and nutrition, are so little understood.

We now advance from infancy to childhood—and this is a period when the greatest attention is required in supplying nutriment to aid nature in the great work of developing the body. The child is now deprived of the maternal secretion, and dependent on food prepared for its use by the hand of man—perhaps living in a city, and deprived of pure and wholesome milk from the cow. And we know there is a vast disproportion in the quality of milk when the cow is country fed on the natural productions of the farm, and when city fed on slops and grain, the refuse of the brewery.

It is at this age that the great proportion of bony substance is deposited; those of the extremities are lengthened, become more compact and stronger, and the substance of the teeth is deposited in the cells of gelatinous tissue. How necessary is it, then, that this subject should receive the utmost attention of parents. It has hitherto been too much the custom to leave all this, as belonging entirely to nature

—as a thing we had nothing to do with. We have been too much in the habit of considering that nature furnished her own materials, and man had nothing to do with her operation. The potter cannot fashion the bowl without the clay, neither can bone be formed without earth. No, my friends, nature must be supplied with the material, which, although offered in the most incongruous forms, she has the power of decomposing, selecting from, and supplying for the various purposes required; one portion, as we have already stated, to act as fuel in keeping up the temperature; another portion she selects to add to the flesh, the muscles, skin, and different tissues; and the earths which are held in solution, she carries away by vessels adapted for that purpose, and deposits them atom by atom, until they are so compressed, so strongly impacted together, as to become what we call *solid bone*; and all this so wonderfully wrought, that as we have seen, small tubes are left in the hard stony formations both of the bones and of the teeth, that nourishment may be supplied them, holding in solution the material of which they are composed, that the natural waste and decay may be replaced, and injuries repaired.

It is of this nutrition, and of the earthy matter of which the bones and teeth are composed, a deficiency of which is attended with results so deplorable, that I particularly wish to arrest your attention.

To what can we attribute the calamity which too often befalls the young? I allude to distorted spines, where the bones composing the spine, instead of forming a column allowing the body to be erect and dignified, are zigzag in their course, causing one shoulder to bulge out, and the opposite side to bend or double upon itself. This deformity has been long understood to arise from a deficiency of *lime* in the composition of the bones of the vertebræ, allowing them to fall, press upon, and injure each other, destroying the beauty of the fabric, and the health and comfort of the individual.

Now let us take a glance at the inhabitants of two countries, natives of which are no strangers on this continent. I take them as examples, because the food of the *common people* of those countries, is well known to be of the most common kind. I allude to natives of Scotland and of Ireland—the principal food of the one being *oatmeal*, and of the other, *potatoes*. We have heard a great deal of the famishing poor of those countries, and particularly of the latter—of the misery and wretchedness seen in every hovel; and there cannot be a doubt that famine walked through the land, when the blight and rot despoiled them of their potato crop, on which, for so long a period, they depended as the great article of food. Now, allowing all this—allowing, in the *best seasons*, the chief article of subsistence has been potatoes for breakfast, dinner and supper; glad indeed many of them to get a little animal food once a-week to dinner, or even far more seldom—I now ask, what number, in the thousands of emigrants from that country who yearly arrive at our ports, are there that show a constitution weak, fragile, and wanting in physical strength? Many, no doubt, arrive, worn down by disease and suffering, and in the last stage of debility; but let them recover from that state, and the robust frame and healthy constitution will be again developed; the bones are strong, the teeth undecayed, and the muscular energy only wanting opportunity to display itself;—in fact, when we wish to denote strength in woman, we use the familiar phrase, “strong as an Irish woman;” and all this from being reared on *potatoes*. But then, if we examine the analysis of potatoes, we shall find contained in 100 parts of dry potatoes,—

Carbon,	41.1
Hydrogen,	5.8
Nitrogen, }	45.1
Oxygen, }	
Ashes,	5.0

Here we see that potatoes not only contain the nutrient but the earthy constituents.*

* According to a memorial presented to the French minister, on the proportion

But we have a stronger and more healthy race yet, from Scotland and the north of Ireland, who are generally descendants of the Scotch, and continue, in a great measure, the same means in rearing the young. Now, a principal, I will not say *the* principal food of the youth of Scotland, high and low, rich and poor, except in the larger cities, amongst those who class themselves as more refined and more civilized, but who number few in proportion, consists, for breakfast, at least, of oatmeal—that is, porridge and milk; and milk, potatoes, and wheaten, oaten, and peas bread, or *ban-nocks*, at other times of the day. Animal food amongst the poor is a rarity; a meat dinner on Sunday *only*, being common. Even, among the youth of the better class, butcher's meat, or animal food, is by no means a principal article of subsistence. And I would particularly remark that *Scotch oatmeal* (the oatmeal generally used throughout Scotland) is coarse, and contains much of the bran which invests the oat—containing, as it does, a large proportion of the earthy constituents required for the production of bone. Analysis of 100 parts of dried oats gives:—

Carbon,	50.7
Hydrogen,	6.4
Oxygen,	36.7
Nitrogen,	2.2
Ashes,	4.6

I may here casually remark, that the advantage to be derived from this wholesome food has not escaped the observation of her majesty, Queen Victoria, who appears in the multiplicity of her public duties, not to lose sight of the

tions of nutriment of the means of living, by Dr. Glaser, we find potatoes taking no mean rank.

100 lbs. Wheat Bread contains 30 lbs. of nutritive elements.

"	Flesh	"	21 lbs.	"	"
"	French Beans	"	80 lbs.	"	"
"	Peas	"	83 lbs.	"	"
"	Lentils	"	94 lbs.	"	"
"	Potatoes	"	25 lbs.	"	"
"	Carrots	"	14 lbs.	"	"
"	Beets	"	8 lbs.	"	"

caseine & starch.
albumen, starch,
and sugar.
albumen with
sugar.

equally sacred duties of a mother—and we hear of her son, the heir to the crown of Great Britain, being as fond of his oatmeal porridge as the meanest peasant child in Scotland.

I rather doubt, if parents generally have given to this subject the attention to which it is entitled. I trust, however, that those who have followed me thus far, may be impressed with its importance. We cannot shut our eyes to the complaint which so generally prevails, of decayed teeth—and a moment's reflection will call to mind the number of the young and beautiful who are prematurely hurried to the tomb, ere yet the bud has expanded into the full-developed flower. Nay, comparing the two countries, the statistics of life and death communicate to us also the important fact, that while the greatest mortality shows itself in England in infancy and childhood, on this side of the Atlantic, it is found at a more mature age.

Neither has the tendency of the physical organization of woman on this continent to degenerate, escaped the observation of one of our greatest medical philosophers in this country,* who regards this retrogression as a national calamity, and impresses upon his students the importance of the subject, and the propriety of their attention in attempting to arrest it; and he particularly specifies the great object to be gained in the use of bran-bread, made from unbolted flour. On this head, I shall have more to say hereafter.

With these observations, let us now direct our attention to what can be offered in remedy of this evil.

We have already stated, that in no country in the world are children more beautiful or more lovely—healthy in complexion, quick, smart, and intelligent—active, sprightly, and playful in their disposition. Now, in the period from infancy until the child becomes mature—let us, at all events, say until thirteen or fourteen years, and even to a

* Dr. Jackson, of Philadelphia.

more advanced age—there is a continued growth—a continual deposition of organic and inorganic or earthy particles, which are required for the formation of bone, teeth, flesh, and every part of the human body. I have shown you that the essential ingredients for these several formations are all found in the milk of the mother; consequently, as long as the infant is deriving nourishment from the mother, she ought to partake of good, wholesome, nourishing food—that the blood, deriving these principles from the food, may be able to supply them in turn to the milk from which it is secreted. So long, then, as the child is thus nourished, so long is it safe, and the rudiments or foundation of a robust frame is laid. And if we are to expect, in future life, the stalwart frame of man, or the enduring, firmly-knit, compact, and healthy physical constitution in woman, the organic and inorganic or earthy compounds of which that frame is composed must not be denied—Nature must be supplied, or Nature will fail.

It is not for me to dictate to any parent what shall be the food of his child—it is enough that I point out for their information, what may be required to give, what in common language is called “bone and sinew,” to their offspring. It is necessary then that the food of children shall contain:

1st. Aliment, having the *calorifacient* or heat-sustaining principle. And this is contained in quite sufficient quantity in the usual food—in milk, wheaten bread, potatoes, arrow-root, Indian corn, (as mush, hominy, or corn-bread,) in most vegetable matter, and in sugar.

2d. Aliment containing the nutrient principle. And this is contained in animal food—the lean of beast, bird, and fish—in milk, eggs, wheat, rye, potatoes, beans, &c., &c.

And, 3d. Aliment containing the inorganic or earthy constituents—on which depends strength of frame, and from which are formed the bones and teeth of the individ-

dual. And these are contained in milk, eggs, animal food, and particularly in wheat, rye, oats, potatoes, &c.*

Of the inorganic constituents contained in wheat, (and the same may be said of the other *cereal* grains,) I have already alluded to the benefit to be derived from using bread made of unbolted flour. On this subject, allow me to refer to the difference of flour having much of the bran remaining, and superfine flour, or that in general use throughout this country, and on which Prof. Johnston has made the following curious but practical observations. Examining wheat and flour, as to the amount of the nutrient or muscular matter, the fat-forming principle, and the bone and saline material, contained in grain in different states, he found that

	Muscular Mat.	Fat Prin.	Bone & Sal.
In 1000 lbs. of whole grain,	there were contained	156 lbs.	25 lbs.
" " fine flour,	" "	130 "	20 "
" " bran,	" "	60 "	700 "

Taking the three substances together, according to Prof. Johnston, of a thousand pounds, the three substances contain, of the ingredients mentioned,—

* On this subject, I extract the following from Carpenter's Physiology, p. 488. "These substances are contained, more or less abundantly, in most articles generally used as food; and where they are deficient, the animal suffers in consequence, if they are not supplied in any other way. Thus, common *salt* exists in no inconsiderable quantity, in the flesh and fluids of animals, in milk, and in eggs; it is not so abundant, however, in plants; and the deficiency is usually supplied to herbivorous animals by some other means. *Phosphorus* exists also in the yolk and white of the egg, and in milk—and it abounds, not only in many animal substances used as food, but also (in the state of phosphate of lime or bone earth) in the seeds of many plants, especially the *grasses*. In smaller quantities, it is found in the ashes of almost every plant. *Sulphur* is derived alike from vegetable and animal substances. It exists in flesh, eggs, and milk; also in the azotized compounds of plants; and (in the form of sulphate of lime) in most of the river and spring-water that we drink. *Iron* is found in the yolk of egg, and in milk, as well as in animal flesh; it also exists in small quantities in most vegetable substances used as food by man—such as potatoes, cabbage, peas, cucumbers, mustard, &c. *Lime* is one of the most universally diffused of all mineral bodies; for there are few animal or vegetable substances in which it does not exist. It is most commonly taken in, among the higher animals, combined with phosphoric acid: in this state it exists largely in the seeds of most grasses, and especially in wheat flour. If it were not for their deficiency of lime, some of the leguminous seeds (peas) would be more nutritious than wheat flour; the proportion of azotized matter they contain being greater. A considerable quantity of lime exists, in the state of carbonate and sulphate, in all hard water."

	Whole Grain.	Fine Flour.
Of muscular matter,	156 lbs.	130 lbs.
Of bone material,	170 "	60 "
Of fat,	23 "	20 "
	354 lbs.	210 lbs.

Accordingly, the whole grain is one-half more nutritious than fine flour.* It also shows the very great proportion of *bone material*,—that is, *earthy constituents*,—contained in the bran: no less than 700, out of a thousand parts, or a *little more than two-thirds* of the whole. Now, by reference to the same work, we find, in a communication from a Mr. Bentz, the difference in weight of a barrel of flour, without the bran, and when only the outer coating of the wheat is taken off. He says, “The weight of the bran or outer coating would, therefore, in the common superfine flour, constitute the *offal*, weighing only $5\frac{1}{2}$ lbs. to the barrel of flour, whilst the ordinary weight of offal is from 65 to 70 lbs. to each barrel of flour; showing a gain of from $59\frac{1}{2}$ to 65 lbs. of wheat in every barrel of flour.” Now, if we estimate the earthy constituents to be two-thirds of the offal or bran, we must consider that there is an actual loss of these important constituents, which might be reserved, in every barrel of flour, of 40 lbs.

Again, if we estimate, (according to the average of the consumption of flour to the amount of population, as one barrel to each individual,) that every child shall consume annually only half a barrel of flour, then we find, that by the use of the superfine flour, as commonly used in families, the child is deprived yearly of twenty lbs. of those earthy substances which are required to form the bones and the teeth. When we speak of a child consuming half a barrel of flour annually, it appears a large quantity; but when we reduce the same to a daily allowance, we find that it is little more than 4 oz. or $4\frac{1}{2}$ oz.; and every parent must know that this would be a very small amount to limit children. Yet we see how large a quantity of the

* Patent Office Report, 1847, p. 116.

bony material would be added, if unbolted flour was used instead of the present superfine flour. I may here add, that the oatmeal used in Scotland, already referred to, contains the bran or inorganic constituents, while the oatmeal used in England is deprived of it. Now this is a great loss of the most valuable constituents in only one of the principal articles of the food of children; and if we allude to another article, which is largely used on this continent,—I mean Indian corn,—(and I may also add the fat of meat, both of which, children, if allowed, will partake of very freely,) we shall find that both of these abound more in the calorifacient, or heat-sustaining principle, and for the deposition of fat, than the nutrient; and that they are quite deficient of the earthy material of *lime*—that material on which so much depends the proper structure of the teeth. Analysis of Indian corn shows the following composition—as taken from Mr. Salisbury's prize essay—read at the New York Agricultural Society, for 1849:—

Whole kernel.	Ash of the kernel constituting about two per cent.
Starch,	50.64
Sugar and Extractive,	7.46
Sugar	1.50
Fibre,	6.28
Matter separated from Fibre,	0.05
Albumen,	8.64
Caseine,	1.70
Gluten,	4.56
Oil,	4.00
Dextrine or Gum,	4.84
Water,	10.22
	99.89
	97.000
Carbonic acid,	a trace.
Silicic "	1.450
Sulphuric "	0.206
Phosphoric acid,	50.955
Phosphate of Iron,	4.355
Lime,	0.150
Magnesia,	16.530
Potash,	8.286
Soda,	10.908
Chloride of Sodas,	0.249
Organic acid,	3.400

This is a most elaborate analysis—far more minute than any analysis we have had of any of the articles of food—in fact, more minute than satisfactory; for the analysis of the whole kernel does not exhibit any amount of inorganic constituent; and when the whole was converted into ashes, we find that the *lime* only amounts to *the one-sixth of one part* in a hundred. Now, on inquiry, I find, on the authority of a very intelligent miller of this city,

that in grinding corn, the bran, or thin skin of the grain, is detained in forming it into corn-meal; consequently, it is deprived of even that portion more particularly containing the earthy constituents. This gentleman in conversation mentioned an important fact, relative to this deficiency of lime in corn. To the best of my recollection, he observed, "This stands to reason; for, ten years ago, all the lower part of Jersey grew excellent corn, but would not grow wheat; but since the introduction of *lime* as a manure, they have raised considerable wheat crops." Now the fact is, it is not the habit or food of this plant, even had *lime* been in the earth; and magnesia and the saline manures are recommended to the agriculturist as best suited for its proper development.

It is generally looked upon as invidious, and one is more likely to incur odium, than to receive credit for saying one word against a food which stands so high in public estimation, and is so universally used over this continent. Yet it must not, for one moment, be supposed that I condemn the use of Indian corn, in its various forms of mush, hominy, bread, or pudding, as an article of diet—far from it; but containing, as it does, a large proportion of starch and fatty matter, rather a small proportion of the nutrient principle, and quite a deficiency of the inorganic or earthy constituents, I consider it as valuable, as a light diet, for heat-sustaining purposes only, and therefore a desirable adjunct to *other food*, containing more nutriment and a due proportion of the earthy constituents.

As an example or illustration of the want of the nutrient principle in corn or corn-meal, I may here allude to the effects I have seen in the West Indies; where, in a dearth of the ordinary provisions on which prisoners were fed, corn-meal was substituted; corn-meal and salted herrings, fish, &c., constituting their food. Now the effect was, that all the prisoners lost their natural strength; at the same time, they became fat and bloated, inclining to dropsy: and this was not the effect of incarceration; for the pri-

soners were engaged in road-making, trimming fences, &c. ; consequently, in a healthy and exhilarating employment.

In reference to our domesticated animals, it may be asked, Why is corn so useful, as an article of food, to animals generally—horses, hogs, sheep, &c.? I have already shown that the overplus of the calorifacient food, after what may be required for sustaining the temperature, is stored away in the form of fat. Now, if we instance the horse: corn is generally, if not always, given as an adjunct to his more usual food, hay. And we find by analysis, that grass or hay contains not only the nutrient principle, but the inorganic constituents required in the formation of bone, &c.

One hundred parts of dried hay contain—

Carbon,	45.8
Hydrogen,	5.0
Oxygen,	38.7
Nitrogen,*	1.6
Ashes,†	9.0
	100

Thus, the hay gives to the animal strength in bone and muscle, while the corn supplies additional heat-sustaining properties, and lays by, in the form of fat, the overplus as a reserve. The harder the horse is worked, the more corn he can bear; the great proportion of the carbon being carried off by the lungs, and the hydrogen and oxygen, as water, in exhalation and perspiration. But if the same quantity is given to a horse at rest, it overloads him with fat, which, in his case, accumulates more internally, or around the internal organs, and will, in course of time, induce disease; while in the pig, under similar circumstances, the fat is laid on externally, if I may so speak, giving the rich fat pork of our markets. And here I would again remark, that no farmer would consider it necessary or essential to give corn to a young colt or horse, until re-

* Fifteen pounds of such hay, containing oz. 3.095 of nitrogen.

† These ashes having a good proportion of lime.

quired to work; nay, so careful is nature, in appropriating just so much and no more of any constituent that may be required, that the food of the young horse should be more nutritious than heat-sustaining; and that there shall be no superfluity to store away fat, we find by analysis, that the milk of the mare has little or no butter, in fact only traces of it, in its composition.* What a lesson in the animal economy is here given, and what a practical illustration of the requirements of the young of that and other animals!

Again, it may be contended, that among the beautiful children we see on every hand, there is no want of those who are fat and hearty. It is not *fat* we want—it is bone and muscle—with so much fat only as shall give firmness to the flesh and plumpness to the figure. Fat, although it enters intimately into union with the other component parts of bone and muscle, cannot be transformed either into the inorganic constituents of bone or teeth, or into muscular fibre; these must be contained in the food consumed, in the first place, and thence transferred to the blood.

How necessary, then—how important it is—if we expect to give strength and vigor to the constitution, that the food, in the first years of infancy and childhood, when the formative process is going on, should receive some further attention than has hitherto been given to it; and if our youth—if our young females have hitherto been deprived of the necessary constituents for the full development of every portion of the body—can we wonder that a woman should be the delicate and fragile being she is, or that by the decay which assails the teeth in early life, she should be deprived of an ornament of so much value? If this state of things can be altered—if the physical constitution of woman in America can be saved from further degener-

ANALYSIS OF MARE'S MILK.		
Water,	896.3	
Butter,	Traces.	
Caseine,	16.2	
Sugar of Milk, Extractive Matters, and Fixed Salts,	87.5	
		1000

racy—a purpose may be effected, of consequence even in a national point of view; for it is to the healthy and vigorous constitution of woman that we must look for a race of hardy, vigorous and enterprising freemen.

In conclusion, I would briefly state, that this is a matter in which professional aid can avail little; it lies at the door, and must be the work of parents generally. It is for them to understand the great value to be attached to the food on which their children subsist—that it shall be wholesome and nutritious, and abounding in the earthy compounds so absolutely necessary to their proper development. If the chief articles of food have hitherto consisted of compounds made of superfine flour, corn-meal, and the fat of meat, let there be substituted in their stead, bran-bread, milk, eggs, the lean of meat, and potatoes; let more attention be given to the nutrient quality of the food;—let there be no deficiency of those articles containing the earthy material, that the bones and teeth shall not be deficient in those constituents so necessary in their composition and structure; and I should be inclined to hope that the evils which now exist will be lessened, and the physical organization of succeeding generations be equal to that of any nation upon earth.

DISTRICT MEDICAL SOCIETY FOR THE COUNTY OF
GLOUCESTER.

ESSAY
ON PERIODIC OR RECURRING COLICS.

*Read before the District Medical Society for the County of Gloucester, by
JOSEPH F. GARRISON, M.D.*

WE are constantly called upon to prescribe for persons suffering from the frequent recurrence of attacks of colic. Every few days or weeks they are tormented by the returns of paroxysms of disease—always painful—often dangerous—and sometimes so agonizing as to make them

desire death as a relief from anguish so intense. In many instances, the health is broken down, and the patient dies, after years of suffering, worn out with exhaustion and chronic disease, or is suddenly destroyed in one of the paroxysms. With the management of these cases, during the presence of the colics, we are all familiar, and the indications are in general so simple, that no comment on them is required. But I wish to direct the attention of the Society to a mode of treatment in the intervals, having for its purpose the correcting of those states of the system which predispose to the attacks, and thus to prevent the paroxysms, and permanently cure the disease.

Colic, I regard as a disease which is in its essence purely nervous; often, indeed, complicated with additional elements or other ailments—as congestion, inflammation, or organic lesions—but characterized, *when simple*, by all the features which distinguish the neuroses: the suddenness of the attack, the intermittent pain, the intensity of suffering, with freedom from fever, the rapid recovery, the accompanying phenomena of spasms of the intestines, cramps of the muscles of the abdomen and limbs, and coldness of the extremities, all unite in fixing it as one of this class of diseases; differing from its congeners only in circumstances depending on the nature of the organs and tissues in which it has its seat; being, in fine, neither more nor less than an intestinal neuralgia.

In an ordinary state of the intestines, they exhibit no sensibility; the food, converted into chyme in the stomach, is propelled into the bowels, where its presence excites the peristaltic action, which, under the controlling influence of the sympathetic nerves, forces it onward, by a regular and uniform movement. In its course, it is acted upon by the bile—gives up to the lacteals its nutritive elements—is mingled with the secretions from the surface of the bowels, and by the chemical reaction of the various substances, eliminates gases, becomes faeces, and is expelled from the rectum; and in all these, excepting the last, without any

feeling which can indicate the changes which are occurring. But if there be congestion, irritation or inflammation of any one of the coats of the bowels—an alteration in the quantity or quality of the bile—a change in the secretions of the mucous membrane, which renders them acrid or incapable of acting properly on the food—or any article which from its nature resists their digestive influence—or certain affections of that portion of the nervous system which is distributed to the intestines; if either or any of these circumstances be present, we have conditions favorable to the production of pain in the bowels; inasmuch as each of these states would have the effect of exciting the terminal portion of the intestinal nerves, which would cause an exaltation of their sensibility, and produce pain or tenderness. If the disturbing cause acts only on the nerves of the part in its *immediate vicinity*, we have a *localized* pain, more or less acute, extending over a larger or smaller space, according to circumstances; either persistent, and accompanied with tenderness, as in inflammation—or intermitting, as in *gastral*gia or heartburn. In other cases, the irritating influence is conveyed to the *nerve-centres*, and is *thence* diffused—or, as the physiologists say, reflected—through all the neighboring ramifications of this system. Instances of these pains in other parts of the body, from reflex action, will occur to every one; as, pain in the shoulder, from disease of the liver,—pain in the forehead, from cold taken into the stomach. I have known pain down the thigh from the action of a purge; and intense pain in the sacrum, from an indigestible meal. When its seat is in the bowels, we have pains over the whole surface of the abdomen—shooting and darting in their character, changing in their position, exceedingly violent, but quickly subsiding and recurring at intervals; the regulating power of the sympathetic nerve is for a time destroyed; one part contracts energetically and is in spasms—another refuses to contract at all—the contents of the bowel are no longer propelled through it, and we have con-

stipation; or, as these states alternate, the gases of the bowel, which are often eliminated in very large quantities by the chemical reaction of the depraved secretions and unsuitable ingestæ, are forced from one portion of the bowels to another, and expelled by the mouth or per anum; or the irritation may even be so intense, that the peristaltic action is entirely inverted, and we have stercoreaceous vomiting; or the spinal system may finally become involved, and we then have cramps of the muscles of the abdomen or limbs.

This I conceive to be the rationale of the production of colic. When to this we have added a state of congestion or vascular irritation in the *substance* of any one of the tissues, as the *cause* of the attack, or quickly following the action of the cause, we may expect inflammation to be rapidly developed, which will be rendered violent and unmanageable by the excess of nervous action with which it is associated; this, in its highest grade, is what is known as bilious colic, or ileus, and is generally the only danger we have to fear in managing the paroxysm of colic, as death from spasm or intensity of the pain is of very rare occurrence.

It is more difficult to account for the mode in which colica pictonum is induced; but many circumstances seem to indicate that the lead has been absorbed into the circulation, and conveyed by the blood-vessels directly to the nerve-centres—first to the abdominal sympathetic centres—thus disturbing the power which regulates the sensations and peristaltic action of the bowels, producing pain and constipation; and then on the spinal centres, which regulate the motions of the arms, producing paralysis of their extensors, and flying pains over the whole system. That it is absorbed into the blood, and does not act by mere contact with the bowels, or mere nervous sympathy, is shown by the facts—that the most easily soluble salts are most poisonous—that it is most deleterious when inhaled into the lungs, where it is brought into direct contact with the

blood—and that it is in almost every case preceded by the deposit of a compound of lead along the edge of the gums, forming that blue line which is so beautifully diagnostic of the disease, and which seems to show conclusively that the poison has entered into the circulation. We attended, a few months since, a gentleman suffering from well-developed lead colic, caused by drinking water conveyed in leaden pipes. On looking at his gums, we found this blue line strongly marked. Some others of the family were complaining of uncomfortable feelings, but with no decided symptoms of the colic, and as they had all drank of the same water, we examined their gums and found the blue line clearly visible, indicating that some of the lead had entered the system, but not yet in sufficient quantity to produce its characteristic phenomena. By ceasing the use of the water the blue line disappeared, and the impending attack was warded off.

We have still a third class of colics; that in which they are associated with some obstruction in the bowels, as impacted faeces, or a tumor, or with some organic lesion of the bowels, or a disease of some of the neighboring organs, as the liver or kidneys; any of which may transmit an irritation to the nerve-centres, which shall be reflected to the bowels and cause colic. In cases where colic is induced by such causes, it will of course be likely to recur frequently, so long as the disease which is the occasion of it shall continue; and the prevention of the colic can only be sought in the use of extreme care to avoid exciting causes, and endeavors to remove the predisposing disease, which is too often an almost hopeless effort.* But by far the greater

* A curious case of colic, referable to this class, fell under my notice some time since. The patient was an elderly lady who had been ill for some months. She had, at the first, nausea and vomiting almost incessantly; these were all her complaint. She had no pain, no soreness, no fever, tongue slightly furred, no appetite, complexion straw color, countenance anxious, losing flesh rapidly, urine pale, of a peculiar disagreeable odor, depositing a copious pink sediment, which Prout says is one of the most certain signs, when present, of deep-seated disease of the liver. After a time, she had pain come on in the back, which soon became persistent over the region of the kidneys; this soon diminished, and was

number of the cases of recurring colic seem to be the result of those causes which we have before indicated as the conditions favorable to the production of pain in the bowels: "Congestion of, or chronic inflammatory action in some of its coats, an alteration in the quantity or quality of the bile, or a depraved state of the intestinal secretions, which render them incapable of acting properly on certain articles of diet." So long as these conditions are present, a slight excitant, either internal or external, may cause a paroxysm of colic, which, being frequently repeated, constitutes the disease which we have called "recurring or habitual colics." In some instances, the morbid state which predisposes to the colic is too slight to affect the whole system, or even to excite, in *ordinary*, any strongly-marked local symptoms; and the patient, in *the intervals*, feels quite comfortable, though seldom, we suspect, entirely free from all morbid sensation. But if the disease is allowed to continue, not only do the colics become more frequent and severe, but the slow and constant action of these causes at length develops well-marked disorder in one or all of the functions of the digestive apparatus; in other cases, symptoms of extensive derangement of this apparatus *precede* for some time the appearance of the colicky attacks. But whether one or the other of these states be that in which we find the patient to whom we are called to prescribe for recurring colics, the inference is, that some one of the conditions before named exists within the bowel, waiting only for an excitant to develop a paroxysm of pain; and the indication is to correct these depraved intestinal secretions, or remove that chronic intestinal irritation which has predisposed to the attacks; and the predisposition being thus removed, the excitants will no longer be able to develop an attack.

The great agent in the correction of these deranged states

followed by colics, coming on every night after 12 o'clock, and accompanied with severe gravel: purges or opium would relieve them, but they regularly returned next night. After a time they left her again, but she shortly afterwards died, worn out by disease and debility.

of the bowels is, as we all know, mercury; and it is in the *steady, long-continued, uninterrupted* use of this mineral, in *very small* doses, and *always short of salivation*, that we are to look for a change in those morbid actions which are the cause of these recurring colics. The use of this drug in ordinary cases of indigestion is so common, that we are accustomed to regard it as our sheet-anchor in that disease; but the idea of employing it in these cases of habitual colics, in this manner, and with the purpose of overcoming the disposition to a return of the paroxysm, I have derived from my father, and, so far as my information extends, it is entirely new with him; he has thus used it for many years, and with very encouraging, though, of course, not invariable success. There is a peculiarity in the action of *small* and *long-continued* doses of some remedies—mercury, in particular—different from that which they exercise when rapidly urged and in large amounts, which is very remarkable, and worthy of all note from the practicing physician: it is well illustrated in many instances of this disease, as will be noticed in the cases which I shall give of the details of the treatment. Dr. Latham, in his most admirable work on diseases of the heart, comments on it so judiciously, that I will quote his remarks. “Small bleedings and small doses of mercury are undoubtedly curative in forms of disease where large bleedings and large doses exercise no remedial power whatever; a large venesection will, as it were, leap over the disease without touching it, and afterwards a few leeches will bring it safely and gradually to an end; a *rapid* salivation will pass by the disease and leave it unaltered; but when this salivation has been allowed to wear itself out, and the constitution being left to forget, as it were, the impression, and recover from it, then the remedy, being resumed on other terms and administered in *very small* and *very cautious* doses, has wrought, in process of time, an easy and an effectual cure.”

It is of *this* effect of mercury that we seek to avail ourselves in these cases—avoiding salivation as useless and likely to

interfere with the treatment—avoiding any irritation from the medicine by combining with it opium or cincta, taking special care to keep the bowels calm by the use of mild ingestæ; and to avoid everything which would be likely to act as an irritant to the intestinal nerves—"cold, costiveness, or improper articles of diet"—neutralizing the action of the too acid secretions by the use of alkalis—obviating the tendency to constipation by the use of some light aperient, as the "blue mass, rhubarb and aloes pill;" or, what will often answer still better, in cases where there is rather debility than excitement, five grs. of sub. carb. of iron, with two grs. of rhubarb or aloes, three times a-day; and treating any troublesome symptoms as they rise according to the indications; but persevering slowly and steadily in the use of the mercury, hoping, by a cautious continuance of it, to reduce the latent irritation, or to change the depraved secretions which have been the cause of all the evil, and keeping in mind the disposition so strongly marked in the nervous system, to be easily and frequently affected by causes which have once made an impression upon it, and not suspending our medication until the attacks have ceased for so long a time that the nervous system has lost its tendency to be so readily excited by impressions from a formerly disordered organ. To illustrate the course of the disease in different individuals, and the mode of treatment, I will add, from my father's notes, and my own, the details of a few cases.

CASE 1. (From my father's notes.) "Called, January 29, 1826, to see Mrs. H—— in an attack of colic. She was soon relieved by ordinary treatment; but after her recovery from the paroxysm, she informed me that she had been subject to returns of the disease at intervals of three or four weeks during the last two or three years; and that, in several of them, her life had been endangered by subsequent attacks of enteritis. She wished to be permanently rid of the colics. I proposed mercurial salivation, but she objected, as she had several times been salivated by a single dose,

but never with any relief. I then advised one-quarter of a grain of calomel, with opium, three times a-day, with strict rules as to diet. She continued this until June; during this time she had two or three very severe attacks. In June I stopped the treatment, fearing that I had done her no good;—but she had no more attacks so long as she remained under my observation, five or six years. Her mouth was at no time affected by the mercury."

In this instance, the colic seemed the only ailment of the patient. In the intervals, she was free from any considerable uneasiness, but there was, doubtless, a persistent derangement of the secretions of the intestinal canal, or of the liver, which was constantly predisposing her to the colics. We have many examples, in other parts of the system, where a fixed cause is productive of only paroxysmal developments of disease—as in cases where a persisting cause of irritation in the brain induces epileptic seizures at long intervals—or where a carious tooth excites only occasional hemicrania.

CASE 2. (From my father's notes.) "Called to prescribe for a member of Mr. Jacob Ballenger's family in August, 1827. After having made my prescription, was asked in to see Mr. B., who had been suffering from colics for four or five years; and so severely, that although previously a healthy and temperate man, he had two years ago given up his trade of wheelright, sold out his stock, and taken to his bed to die, as he expressed it, without any care on his mind. He had been several times treated for his disease, by practitioners both regular and empirical. He had been rigidly dieted more than once, for several months in succession, and two or three times salivated severely—though it took large doses of mercury to affect his system; but all with so little benefit, that he had relinquished all treatment and all hope of cure. He was now emaciated to the last degree—lay constantly on his back, with his knees drawn up, until sores had formed on the sacrum—a new cause of irritation. He had, during the last year,

been constantly and severely affected with dyspeptic symptoms; vomiting all his food in an hour or two after it was swallowed, mingled with a quantity of acid matters, and sometimes clear bile. He was troubled excessively with flatulence and loud borborygmus—his eye was large and bright—his brow corrugated, as one suffering intense pain—his bowels were habitually constipated, and could only be moved by enormous quantities of medicine; and the least quantity of opium added greatly to his sufferings from this cause; but he was entirely free from the hypochondriacal symptoms so common in cases of indigestion, and he retained medicines at all times—even the most nauseous—though rejecting all kinds of nutriment. He had pain in one shoulder, but no tenderness over the liver; pulse one hundred and fifteen, and very weak; skin dry and parched. His colics were now returning with exceeding violence, every ten or twelve days. The only food which his stomach had retained for some time, was a piece of cold pork, covered with black pepper, which he had taken the day before my visit. He was willing to undergo any treatment which promised him even relief—excepting mercury and opium; the latter induced such severe constipation, that he preferred suffering the colics to taking it; and the mercury he thought had been sufficiently tried. I ordered him to continue the pork for his diet, with lime-water and cream; this relieved his more urgent symptoms—as sickness, &c.—and, in a few days, I commenced to give him, every four hours, two grains of pulv. cicuta, with one-eighth of a grain of calomel. He had two very severe attacks of colic within eighteen days; after this, they were farther apart and lighter, and his bowels were more easily moved. He continued the medicine thus—only increasing the cicuta as the system became habituated to its use—during which time, milk and old bread were added to his diet and retained. Under the treatment, he improved, and stopped it in December; but another attack, in January, induced a return to the course. The calomel was then increased

to one-quarter of a grain, and continued another month, when, having had no attack, he ceased the calomel, and I substituted the nitro-muriatic acid; from this time onward, he recruited rapidly, recovered his former health, and till he passed from my notice, seven years subsequently, had no farther attacks."

In this case, the attacks of colic preceded some two years the full development of the symptoms which in the end told, in the most distressing manner, the disastrous influence of even a slight deranging cause, if allowed to go on unchecked; the altered secretions, whose existence was shown at first only by the occasional colics, soon disordered in an extraordinary degree all the digestive apparatus.

My father has used the remedy, in cases similar to those just quoted, ever since that time; and of some fifteen or twenty thus treated, all but five have been permanently relieved; and in those five, relief was afforded—but only temporarily, as the disease returned at periods of three, five, and six years.

CASE 3. (From my own notes.) Called, September, 1846, to prescribe in an attack of indigestion for Mrs. P—, about thirty years of age, the mother of several children, and hitherto in good health. She was soon relieved of the most distressing symptoms, but was seized, in a few days, by a terrific attack of colic—which was, in a short time, followed rapidly by others, some of exceeding violence, from which she was with difficulty relieved. Her health began rapidly to sink, from the influence of the suffering induced by these repeated attacks, and the dyspeptic symptoms now constantly present; her spirits were depressed; her countenance sallow; her eyes sunken, with blue discoloration beneath them; hands and feet, particularly the latter, constantly cold, with sensations of chilliness over the whole body and across the abdomen. After eating even the simplest article, as bread, she experienced feeling of tightness and oppression at the epigastrium. She had constant sore-

ness of the abdomen, with disposition to tympanitis, borborygmus and belching. The tongue was covered with a thin white gauze-like coating; the bowels were always costive; but unless they were freely open every day she had violent pains. After several of the attacks she was threatened with enteritis. At length the paroxysms grew so frequent and violent that she consented to a regular course of treatment. I commenced by giving two-thirds of a grain of calomel in the day, in divided doses, with three or four grains per day of Dover's pulv., and at bedtime three or four of the blue mass, rhubarb and aloes pill, to obviate the costiveness. But after a few days I substituted, in place of these, a powder, taken three times a-day, (each containing sub carb. of iron, gr. v; and powdered aloes, gr. i vel. ij), which answered admirably, producing, at the same time, a tonic and an aperient action. I continued the calomel, as above, eight weeks, and then increased it to gr. iss a-day. She amended rapidly under the treatment, and had no more colics, although several times threatened, from violations of the strict dietetic rules which were necessary. At the end of the third month, she had so far improved as to suspend any further treatment, and has since continued free from her colics. A short time before this, I treated another lady, somewhat similarly affected, who continued undisturbed until the past winter, during which she has had an attack, about three years from her last one.

The last case cited is an instance where the symptoms of intestinal derangement preceded the colics, and were fully developed before the coming on of the paroxysms.

Each case is the type of a class; differing, however, mainly in the order of sequence of the phenomena, and not so much in their nature; similar as to the essential cause of the colics: similar as to the main outlines of the treatment, but requiring, as does every case which comes under the care of a physician, the use of discrimination and tact, in meeting the indications and in the adaptation of the great remedial agents to the particular exigencies of the occasion.

ON THE TREATMENT OF HYDROPHOBIA.

BY FRANCIS MORAN, M. D.

I SEND you a statement of the following cases of persons bitten by dogs undoubtedly rabid, which, if you think it worthy of an insertion in your journal, you are at liberty to publish. Some of these persons were bitten on the bare skin—others through very thin clothes; the first through pantaloons; but as he was severely bitten, it was supposed that much danger existed; still, the nature of clothing was explained to him and to the others, and the possibility of an abraded surface escaping from infection from the virus. In none of the cases do I regret the means used; for in such cases the mind needs something to feed upon, as also that of the community. Still, though we should make use of the best means to prevent the disease of hydrophobia, and keep the mind tranquil, we should never do it at the sacrifice of truth. In regard to the use of the sub-acetate of copper, I was induced to use it, as it was the *active* part of the remedy of John M. Crouse, of New York; but only in proper doses. As the late Dr. David Hosack recommended it, as one of the best tonics he knew, from its effect in the fifth case, I feel warranted in adding my testimony (small though it is) to his. I would, however, candidly state, that the removal of the bitten part, when it can be done, and at any time before the appearance of disease there, is the only remedy in which I have any confidence; all others are merely auxiliaries. They act on the mind; and in the prostration which the fear of the disease produces, tonics, and medicines which will allay the nervous excitement, are needed.

I had been engaged in the study and practice of medicine and surgery eighteen years, without a case of actual or dreaded hydrophobia; when, on the night of the 12th of November, 1835, I was called on by a resident of this township, who stated that his brother, R. Stockbower, was, two

or three days previously, bitten by a rabid dog; that he had applied to Dr. Crittenden, of Dover, now deceased, who advised him to return home as soon as possible, and get a physician in his own place to attend him, but not to rest satisfied till he had the bitten part cut out clean; he requested me to call on Dr. Hedges, then of this village, now deceased, and consult with him, and between us to do the best we could for the safety of his brother. I did so, and the result of our united opinions was, to remove the bitten parts, and then put him on the remedies stated below. I repaired to the house, before day, and removed seven pieces, to the best of my recollection; applied simple cerate, with occasionally the green cerate to keep the parts discharging, for a month or more; and gave, internally, the sub-acetate of copper, in doses which would be easily retained in the stomach, three times a-day, with a pretty strong infusion of scutellaria. This treatment was followed for about a month: the man had no bad symptoms, and is now a healthy man.

CASE 2. Not long after—but I have kept no notes which would give me the precise time—J. Hindershot applied to me. He had been bitten on the hand; the skin was abraded; a similar treatment to the above was adopted.

CASE 3. 23d of June, 1836, Capt. M. Cox was bitten on the hand by his own dog. This dog, after biting him, passed over about three miles of road, and through the village of Lafayette, biting, or attempting to bite, every living thing which came in his way; he was there killed and thrown into the creek. The captain hearing that a dog had been killed supposed to be his, to be satisfied of the fact, dragged the creek for several hours, till he found the body, which proved to be that of his own dog. He came to me, wet, weary and sad. I stated to him my former experience, such as it was, and gave him as much hope as I honestly could. The piece was cut out; the copper and scullcap was given, as in the other cases. This treatment was pursued for about a week or more, when a clergyman recommended an application to a physician in a neighboring

county, who was said to possess a valuable remedy. This physician wrote a letter to me and Dr. Hedges, stating his remedy; which was—

B.—Mild chloride of mercury, grs. vij;
Hydrochloric acid, gtt. xij;
Alcohol, f. oz. iij.—M.

Commence with half a teaspoonful, to be increased to a whole one if the stomach will bear it, and continued till the system is brought under a mercurial influence; this to be preceded by a dose of jalap and calomel, which is to be followed by a full dose of laudanum.

By the advice of Dr. Hedges, this remedy was substituted for the copper, which, with the sculcap, was continued for about three weeks. By the use of this there was a slight ptyalism produced. My patient is still a hearty man.

CASE 4. About August of the same year, — Mathers, of Westtown, Orange county, N. Y., came to Lafayette, on his way to Easton, Pa., to consult Dr. Saylor, a celebrated witch doctor and empiric. Several gentlemen of that village advised him to abandon his journey and to apply to me, which he did that day. He was bitten on the hand by his own dog, a day or two before. The dog he chained up at home. I cut out the piece; gave him the cerates and copper pills, with the sculcap, as used in the former cases. He went home satisfied. On his return, however, finding that his dog died raving mad, and induced by the advice of officious persons, he rested not till he had seen Dr. Saylor, a distance of about seventy miles. But, being a man of considerable intelligence, finding that Saylor put him off with some nostrum, which he supposed could not reach his system as a remedial agent, he returned from him dissatisfied; and on his way home called again on me for some more sculcap, which I gave him. He promised to continue my plan of treatment, and to advise his family, if any symptoms should show themselves like the approach of the disease, that they should immediately call on me; and as I

have heard nothing of him since, though but a distance of twenty-four miles, I conclude he continued well.

CASE 5. October 3, 1840, a daughter of S. Ward was sent to me. She was a delicate child, of about eight years of age. She was bitten on the leg by a dog; a single tooth appeared to have penetrated through a thin stocking and into the leg about a quarter of an inch. A physician had put some corrosive substance into the wound, which had (or else the tooth) produced a tumefaction in the part of about two inches in diameter. I removed the tumefied part, at the centre sufficiently deep to pass the knife some distance below the part injured by the tooth; and put her on the treatment pursued in most of the other cases, viz., simple and green cerates to the wound; the copper and scullcap internally. Upon this treatment the child appeared to acquire a new development of her frame, and renovation of her constitution, and from being a weak, feeble child, became a ruddy-cheeked girl; and, astonishingly to me, she became so attached to me, notwithstanding the apparent harshness of the operation of removing the piece in the tumefied and inflamed state in which it was, that for some years, when she came to our village, she would not be satisfied without calling to see me. She is now a promising young lady.

I have now to record another case, which, from the carelessness of the patient and parents, and from the interference of a neighboring physician (a physician to whom Dr. Pennington once applied the epithet of Ishmaelite), gave me more trouble than all the others.

CASE 6. June 1, 1843, J. Groover, a lad of about thirteen years of age, was bitten near the hip, through thin summer clothes, by a dog which had bitten several animals (these animals all subsequently went mad). He was brought to me. The skin was abraded, but no appearance that blood had been drawn. I removed a piece of the skin; put him on the mercurial course, as prescribed in the case of Captain Cox, in the form recommended in the prescription I had received as above stated—it being the same form nearly as given by Dr. F. W. Francis, for children—

with very strict directions, and promised to visit him occasionally; but his brother wished me not to put them to that expense; promising to inform me, should anything occur requiring my attendance. This case has given a useful lesson to me, never again to give medicine to a person who is unwilling to have the necessary attendance during its administration; for they invariably complain most of want of attendance, if through their own carelessness any untoward accident occurs.

About the first of July, on an extremely hot day, he was brought to my house, in my absence, in a large open wagon, and word left to visit him the next day; which I did. I found him with considerable fever, and a swelling on the side of the neck, and skin much flushed and red. I prescribed febrifuge medicine, and liniment to the neck. In two days, an abscess had formed on the neck, which I opened; then his skin showed an appearance very much resembling scarlatina. I was told by his mother, that previously to his complaining, he had bathed in a pond near the house, which the lad denied; but he being of a high temper, and appearing to have had much of his own way, I rather inclined to favor the statement of the mother. I was subsequently better satisfied from the statements of several respectable persons, who had seen him bathe several times, that my decision was well formed. The physician above alluded to raised an alarm; stated that I had given the lad poison, which had produced mercurial erythema, (although he had been on its use for a month, without producing any derangement, or even ptyalism), while it appeared to me that the fever and disease of the skin was produced by the locking-up of the surface by the baths, and subsequent exposure to the sun's rays, in traveling in an open wagon, about twelve miles, on a very hot day, with many other irritating causes. It is needless to detail the treatment of this new disease, which was on general principles. He got well as soon as could be expected, and is now in good health.

NEWTON, SUSSEX Co., N. J.

HYDRANGEA ARBORESCENS:

A NEW REMEDY IN LITHIASIS.

BY S. W. BUTLER, M. D.

ONE of the most severe complaints to which man is liable, causing perhaps more exquisite suffering than any other, is that in which solid amorphous and crystalline sediments are deposited in the kidneys or bladder. The complaint, however, is so seldom met with, at least in this part of the country, that it is probable that little is known practically about it by most physicians.

Yet, as we do occasionally meet with it, and as it is desirable that every physician be prepared to combat the disease by every means which the God of Nature has placed within his reach, I have thought it best to prepare for publication a short account of a new method of removing calculi from the kidneys and bladder, provided they are not too large to pass the urethra.

As I merely propose a means of *removing* these deposits, after they have been *already formed*, I shall say nothing of the prophylactic measures that may be resorted to in the different diatheses; leaving this to the judgment of the practitioner, guided, if he pleases, by reference to the valuable works of Prout, Bird, Brodie, &c., on the subject. Nor will I at present advert to the means proposed for the removal of the deposits when made, which are recommended by Cooper, Brodie, and others. What I particularly wish to call attention to in this paper, is the fact, that a remedy exists which has been successfully employed for removing calculi after they have been formed. The principal observations that have been made on the remedy in question, have been by my father, Dr. E. Butler, who has for the last thirty years acted as a missionary of the A. B. C. F. M. among the Cherokee Indians; in a part of the country, therefore, where sabulous and gravelly deposits are more frequently met with than among us.

The plant producing the remedy is very well known in the South and West by the name "seven barks;" and a species of the same plant is familiar to most persons as an ornamental garden shrub, under the name "hydrangea."

Botanically, the plant yielding the remedy is known as "*Hydrangea Arborescens*." In the southern, middle, and western States, it grows abundantly "in the mountains and hills, and on rocks and near streams." I found it growing abundantly also on the banks of the Schuylkill, above Philadelphia; and Mr. Durand, a botanist of Philadelphia, informs me that he has seen it growing on the Bonaparte property at Bordentown. Whether or no it is to be found in other portions of the State, I cannot say. I know not that I can describe the plant so that it will be recognized by persons not familiar with its appearance. It is a perennial shrub, sending upwards numerous stalks from a caudex or head, to the height of from three to five feet. The bark is rough, peeling off—each layer being of a different color; probably giving origin to the name "seven barks." The leaves and flowers much resemble those of the garden hydrangea. When green, the stalks and root contain much water, and the latter a great deal of mucilage, with albumen and starch; but when dry they are very hard, and exceedingly difficult to bruise; if used, therefore, they should be bruised while green. The stalks contain a pith which is easily removed, and they are used in some parts of the country for pipe-stems.

For therapeutical purposes, my father has employed a simple decoction, or a syrup made from a decoction of the root, with sugar or honey. This was made of such a strength, as to be given in the dose of a teaspoonful three times a-day. In an over-dose, it produced some unpleasant symptoms, such as dizziness of the head, oppression of the chest, &c. The effect the remedy seems capable of producing is, removing by its own specific action on the bladder such deposits as may be contained in that viscus;

provided they are small enough to pass the urethra. It has seemed also to have the power of relieving the excruciating pain attendant on the passage of a calculus through the ureter. Whether this is dependent on any anodyne property which the remedy may possess, or upon its action in removing the cause, by promoting the discharge of the calculus, I know not: but think most likely on the latter.

The limited observations which have been made on this, as a therapeutical agent, will prevent me from claiming for it any more certain action than can be gathered from the following imperfect detail of cases. The object I have in view, is to call the attention of the profession to the remedy, in the hope that those who may have the opportunity will try it, and if it proves successful in their hands, make it known to the profession, either through the medium of medical publications, or otherwise.

In giving the following cases, it is but justice to the parties concerned, to say that not one of the patients lived within thirty miles of his medical adviser; it was therefore impossible to make correct observations or to give perfect details.

CASE 1. Concerning this case my father writes me:—“When some thirty miles from home, I saw an old Indian doctor, named Rattling-gourd, in great distress with the gravel. I recommended to him a free use of the decoction of this plant. Some months afterwards I saw him again, and found he had used it, and not only found relief, but he said, ‘It has cured me.’”

CASE 2. Miss Elizabeth J——, being subject to attacks of gravel, applied to my father for relief. He recommended to her the use of the root of the hydrangea. She afterwards said to him—“I have been under the care of several physicians belonging to the army, and taken many kinds of medicine for my complaint, but have found nothing to relieve me as the decoction of this plant has done.”

CASE 3. S. Watts, a Cherokee farmer, aged forty, had suffered long and severely from the gravel. He finally sent

for my father, who supplied him with some of the syrup of hydrangea root. It gave him immediate relief from his suffering, and, after having used it for a few days, he passed about one hundred and thirty calculi, besides a large quantity of sand. A few of the calculi were lost; the remainder are in the possession of my friend and late preceptor, Dr. John Neill, of Philadelphia. Being almost round, they have the appearance, in a vial, of so many pills of different size. The number and weight of them are as follow:—

Whole number of calculi, . . .	120
Weight of whole, . . .	3½ drs.
Average weight, . . .	1.75 grs.
Weight of largest, . . .	9 grs.

The largest lodged in the fossa navicularis, and had to be removed by the aid of instruments. Twenty-seven of the calculi were passed within half an hour. Mr. Watts recovered entirely from the complaint.

CASE 4. Philip S. Swartley, farmer, aged about forty-five years. Had been suffering from calculi four or five years. Last winter he applied to Dr. Neill of Philadelphia, who furnished him with some of the syrup of hydrangea root which I had in my possession. The medicine relieved him of pain immediately, and he subsequently brought to Dr. N. two of several calculi he had passed under its influence soon after he began its use. The largest of these weighed eleven grains, and was nearly half an inch long. He also passed a great deal of sand. When I last heard of Mr. S. he had not had a return of his complaint, and was in the enjoyment of good health.

If I judge correctly, the above cases, though imperfect, are sufficient to induce a trial of the remedy.

BURLINGTON, N. J., Aug. 1850.

[Note.—The Hydrangea root may be obtained of Dillwyn & Edward Parrish, S. W. corner of Eighth and Arch Sts., Phila., who will give directions for a uniform preparation of it.]

CHLOROFORM IN OBSTETRICS.

BY J. B. MUNN, M. D.

WITHIN the last few years much has been written, and much has been the experience of the medical profession in the United States and in Europe, upon the use of sulphuric ether, and more particularly chloroform, as a means of suspending muscular contraction and painful sensations in various surgical operations.

The writer of this communication, so far as he has seen the effects of those agents in the hospitals of New York and Boston, and in private practice, in rendering patients insensible to pain during surgical operations, is bound to say that he has been highly gratified by the results he has witnessed, and has come to the conclusion that these agents, used judiciously, have already proved highly beneficial; and their good effects, it is confidently believed, will hereafter be generally acknowledged, and hailed as great blessings, for the relief of the afflicted.

Such has been, as yet, the difficulty of overcoming the prejudice against the use of chloroform in obstetric practice in this country, that it has not been used here to much extent—it having been hitherto confined mainly to the cities and populous towns; yet, so far as it has been tried, it has proved a useful means in painful and tedious labours. The reports from several of the medical profession I have conversed with on the subject, are very interesting and gratifying, and serve to show that by inhaling it moderately it lessens much of the distress in severe parturient cases, and relieves greatly, without inducing insensibility; therefore, with due care and skill, little or no danger is to be apprehended from its use.

Does chloroform, when used, suspend or paralyze the propelling muscular contraction of the uterus, in the throes of labour? The advocates for its use in midwifery say not; but that the efficient uterine contraction of labour

propulsion progresses in a manner as if unaffected by the agent, notwithstanding its general action upon the system is to suspend muscular motion, and, to a great degree, all painful sensation.

Will the effects of inhaling chloroform be to relax that uniform contraction of the uterus and its orifice upon the fœtus, met with in arm presentation, after the liqua amnii has passed off, and no regular labor-pains present, when we are left only, as a last resort, to mutilate and deliver the fœtus with the crotchet and blunt-hook, to save the life of the mother? Or will the use of it, under these circumstances, save the sufferer from the operation of taking away the child by piecemeal, as it has been often called, from the consequences necessarily of more or less injury done to the soft parts; and from much delay, followed by pain, fever, and tedious recovery?

Perhaps the following case may serve the purpose of affording, not merely a conjecture but a fact, in answer to the above questions.

On the 9th day of August, 1850, I was sent for to meet Dr. Kitchel, of Hanover, in consultation, and arrived at the place of meeting about three o'clock P. M. Mrs. S—, thirty-eight years of age, of a robust constitution, and mother of a family of eight children, was the patient. Dr. Kitchel informed me that she had had labor-pains during the previous night, and was seven months or more advanced in pregnancy. At four o'clock in the morning the membranes had given way, and the liqua amnii had passed off entirely. He had arrived there three hours afterwards, and found the patient without labor-pains. An alarming hemorrhage had taken place before his arrival, but had ceased then. She was exhausted, pale, and fainting.

Under the impression that it might be a case of *placenta prævia*, as soon as prudently could be done, he proceeded to make a vaginal examination, and found the *os uteri* just sufficiently expanded to admit the ends of two fingers;

it was thick and rigid. At the same time, the uterus was contracted firmly upon the foetus, and no labor-pains present, except a kind of resisting pain, which was felt upon examination.

Another hemorrhage came on about eleven o'clock A. M., preceded by slight pains. The presentation not having yet been made out, and the flooding continuing, it appeared necessary that something should be done immediately to save the patient. The hand was passed into the vagina to make a full examination, and such efforts as the case might seem to require; then it was that the hand and arm of the child were found presenting in the os uteri. Attempts were made, by pushing the arm back, to reach a foot; but on account of the rigid contraction, as above mentioned, it could not be done. In about fifteen minutes afterwards, the hemorrhage ceased entirely. After my arrival, renewed efforts were made to reach the inferior extremities of the foetus; but they were soon found to be unavailing, as no part of the child could then be reached by any justifiable force (on account of the rigidity above stated), except the shoulder, axilla, and rib beneath it—and that after persevering efforts.

Mrs. S., when undisturbed by examination, had no apparent pain, and was comfortable, although weak and pale. The last hemorrhage had been arrested by cold applications, three hours before my arrival, and did not occur again. The locked contraction of the uterus remaining unchanged, we administered forty drops of laudanum, hoping that its relaxing effects would cause further dilatation of the os uteri; and advising repose and nourishment we left her undisturbed for some time. With the near approach of night, however, the lady began to be very impatient; calling upon us repeatedly for help, and begging us to use instruments, if we thought them necessary; so that our solicitude and anxiety became more and more excited to relieve her, as soon as we could obtain such available means as we wanted for the final efforts.

Accordingly, we sent to Morristown for chloroform, instruments, and medical assistance. About nine o'clock in the evening, Dr. J. W. Canfield joined us; when, in consultation, we decided first to try the effects of chloroform, in order to relax the rigid os uteri, as well as to suspend muscular contraction and pain.

On examination, Dr. Canfield found the state of the case precisely as we had described it. Mrs. S., upon being informed that we intended to have her inhale chloroform, objected to its use, saying she wished to have her senses to the last. She was assured it should be used with due caution, and not pushed to the extent of inducing insensibility. As the shoulder and head of the child were on the right side of the patient, the left hand was introduced into the vagina by Dr. Canfield, to pass it, if practicable, into the left side of the womb. He found it, however, so rigid and contracted, that the ends of the fingers were with some difficulty pressed a little within the mouth of the womb. Mrs. S. having begun by this time to experience the agreeable effects of the chloroform, asked for more. After inhaling it for a short time, the fingers, by a moderate effort, were passed into the uterus as far as the knuckles. Resting for a minute or less, and the relaxation increasing, the hand was easily pushed forward, and came immediately in contact with a foot, which, being firmly grasped, was drawn down into the vagina. The fetus was now delivered without delay or difficulty; and the placenta followed quickly.

The time occupied in the use of the chloroform and delivery was not more than half an hour. The recovery afterwards was every way favorable, and no medical attendance required, except a call or two, made when the family physician was in the neighborhood.

CHATHAM, MORRIS CO., N. J.

SEPT. 19, 1850.

MEDICAL CURIOSITIES.

BY THE EDITOR.

A Crowing Child.—H. A. L—— is an exceedingly nervous, excitable person. Before her marriage she was frequently under my care for hysteria in a variety of forms. I attended her, about nine months since, in her first accouchement. Her labor was tedious, and very painful; the child was of full size, and well-formed. There were no signs of life exhibited by the infant at the moment of its birth, but after spending half an hour in attempts to resuscitate it, respiration was fairly established. The mother recovered her usual health in a short time, and resumed her household duties; but, to the astonishment of all who were interested in the case, the child did not cry. When I discontinued my visits to the mother, it had not cried once. I called occasionally to watch it, and though for a short time it grew, and seemed to be in perfect health when about a fortnight old, it began to lose flesh, and became very fretful; and though it took the breast well, its nourishment was generally rejected, in part or entirely, soon after it was received into the stomach. It would not lie on the bed, but required constant nursing. At times it appeared to suffer pain, and tried to cry; but the effort to expire produced a singular noise, which resembled very much the crowing of a young chicken. From the loss of rest, and almost incessant jactitation, it became quite emaciated, and the hope of recovery was very slender. I was not able to discover any organic affection of the respiratory organs; the air entered the lungs without difficulty, and when the little patient was free from suffering, and perfectly at rest, they gave, upon percussion, a healthy, resonant sound. The difficulty seemed to be in expiration, and that only when the effort was accelerated by the presence of pain, hunger, or other sensation which created the desire to cry. A variety of treatment was adopted in the case. Assafoetida, by the

mouth and per anum, was administered daily for some weeks. Musk, hyoscyamus, valerian, and other nervous stimulants, in combination with remedies to correct the secretions of the digestive apparatus—as hyd. cum creta, calomel in small doses, sub nitrate of bismuth, &c., &c.—were all resorted to, but with no permanent benefit. Salt-bathing was also adopted for a time, and frictions upon the spine, with the oils of amber, cajeput, and olive, but with the same unsatisfactory results. At one time a small abscess formed on the throat externally, near the margin of the thyroid cartilage, which I hoped would be of service, but it discharged and disappeared without any apparent change. I finally put my patient, now reduced to a skeleton, distressing its parents day after day, and night after night, with its pitiful, crowing noise, under the use of alterative doses of calomel and extract of belladonna, which seemed to produce a speedy change for the better: the child began to improve very soon after the commencement of this treatment, and is now robust and healthy. At this time the respiratory function is performed with less interruption than formerly, and the effort to cry produces a sound very much like a hurried, broken laugh: the crowing sound has disappeared.

The history of this curious case is submitted to the reader without any attempt to explain its pathology. During its progress, I have had so many conflicting suggestions presented to my mind as to its true cause, that I forbear to offer any of them, but will be glad to show to any of our friends who may call on us, the singular spectacle of a well-grown, healthy child, of nine months old, who has never cried.

Rupture of a Sac in Utero, at the sixth month of pregnancy.—A lady sent for me to see her, in a supposed miscarriage at the sixth month. When I reached her, she gave me a history of her case, as follows. Ever since she discovered her situation, she had been sensible of an un-

pleasant sensation in the right iliac region; it gradually became more acute, and within the last month had caused her severe pain at times. She was most frequently seized with pain at night, or whenever she was in a horizontal position; and was unable to lie on the affected side. When the attacks came on, she was obliged to sit up, and resort to frictions with the hand, when the severity of the pain generally abated. About an hour before I saw her, she was awakened from her sleep with a sharp pain in the same side, a little higher up than usual, which she described as agonizing in the extreme for a few moments. She was, however, suddenly relieved by "something giving way," and a copious flow of water; at which moment she fainted. I suspected a premature labor, and made an examination per vaginum. The anterior lip of the uterus was slightly elongated, and the os uteri, as I then thought, a very little dilated. She had not had pain since the flow of water, but felt more comfortable than at any time before. I saw her repeatedly through the day, but there was no evidence of approaching labor. In a few days she was able to resume her former exercise. The liquid that was discharged was colorless and inodorous. As nearly as we could judge, there was at least a quart of it. Soon after its evacuation, a circumscribed space, occupying the seat of her former pain, was very perceptible, which gave a decided tympanitic sound on percussion, but was free from pain on pressure. This gradually disappeared, and my patient felt better than at any time before during her pregnancy. She could lie on her right side, and was relieved from the sense of pressure and fulness which she had previously experienced. The fact of there being but little pain while in the erect position, and its being increased by the horizontal position, when the gravitation of the uterus was in the direction upwards and backwards, and a hollow space being left after the discharge of fluid, considered in connection with the sudden relief experienced at the time of the evacuation, would seem to justify the con-

clusion that an adventitious sac of some description was attached to the uterine walls. Was it not a hydatid?

Case of Annual Return of Cutaneous Poison.—A. L.—, a young lady, now twenty-two years, of age, was exposed, in the summer of 1838, to the acrid vapor of the *rhus toxicodendron*, or poison oak. A smarting sensation in the face, occurring after washing with cold water, followed by redness and swelling, induced the belief that she was poisoned by the plant, which she had met with in her walks; the subsequent vesication, and desquamation of the cuticle, confirmed her suspicion. The treatment was palliative, and with the decline of the symptoms, and return of usual health, the affection was almost forgotten. In the year 1839, and about the same time in the year, the disease again returned, and has continued to do so every year since, except the last. She was then on a visit to Virginia; and while there wrote home, that it would mar her enjoyment very much to be confined as usual, with this disease, and desired me to prescribe for its prevention. I did so reluctantly. Alterative doses of iodide of potassium were recommended to be taken daily, for several weeks before the expected attack. She complied with my instructions, and had no return of her annual sickness. Her general health, however, was not so good during the remainder of the year as it had formerly been. She suffered a good deal from headache, fugitive pains in different parts of the body, irregular appetite, and deficient menstruation. This summer the disease has again returned, and she is now convalescing from a mild attack, which has been mostly confined to the lower extremities. She looks well, and probably will be better than she has been for a year past.

ECLECTIC DEPARTMENT.

PRACTICAL VIEWS ON MEDICAL EDUCATION,

SUBMITTED TO THE MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION, BY THE MEDICAL FACULTY OF HARVARD UNIVERSITY.

THE undecided state of public opinion in regard to some of the fundamental points in a course of medical education, including among other things the portion of the term of pupilage proper to be spent in attendance on lectures, is thought, by the undersigned, to justify a further consideration of the subject. In some of its relations, this subject has already been discussed, in the Transactions of the American Medical Association for 1849, in two reports, pages 353 and 359, to which the reader is particularly referred. The following condensed, but more general view of the subject of medical education, is now respectfully submitted to the members of the Association.

BOSTON, *July 10, 1850.*

1. Medical instruction should be adapted to the power of students to receive and retain what is communicated to them, and should be confined to what is important to them in their subsequent life.

2. In modern times the constituent branches of medical science are so expanded, that they are not acquired by any physician in a lifetime, and still less by a student during his pupilage. The same is true even of many individual branches. It is not, therefore, to be conceded that "a scheme of scientific instruction should embrace the whole science, and no part should be omitted;" nor that "a well-digested plan of lectures embraces all that is to be known and taught." Medical science has at this day become so unwieldy, and contains so much that is unnecessary, at least to beginners, that the attempt to explain to students the whole, is likely to involve the result of their learning but little.

3. In Chemistry, at the present time, a thorough adept is unknown. No man living knows all the recorded facts, or all that is to be known and taught, in that science. Organic chemistry alone fills large volumes, though yet in its infancy.

4. In *Materia Medica* there are some thousands of substances and their compounds, which possess what is called a medicinal power. Yet it is not probable that any physician effectively reads the one-half, or remembers one-quarter, or employs in his yearly practice one-tenth, of the contents of the common dispensatories.

5. In Pathology, so complicated and various are the conditions attendant on the individual forms of disease, and their relations with idiosyncracy, temporary condition and external agency, with organic lesions and functional disturbance, that few of the most experienced pathologists can be said to understand the whole science, or to be always competent to its successful application.

6. In Etiology, the theoretical literature of causes has spread itself out to an extent, which is burdensome and unprofitable. It is true, that "man, from his nature, is subject to suffering, disease and death;"—but it is not equally apparent, that "the causes by which these conditions are produced, are ascertainable." We know nothing of the vehicle of cholera or influenza, nor is it probably in the power of any physician, by any art, or application of his knowledge, to produce in a given healthy man, a case of common pneumonia, or of acute rheumatism—of diabetes or Bright's kidney—of hypertrophy or of cancer—or even of a common boil, or wart.

7. In Therapeutics, many hundred volumes exist, such as would not have existed, could a knowledge of the cure of diseases be made so easily tangible that it could be spread before the student in the three or five years of his pupilage.

8. In Anatomy, general and special, microscopic and transcendental—in Physiology, with its intricate ramifications,

tions—in Surgery, of which several subordinate specialties constitute distinct living professions; it is not to be admitted that the means or time of any ordinary course of lectures can furnish full and complete instruction. Certainly it must be difficult to arrange a course of lectures on any of the extensive sciences which now constitute medicine, if it be indeed true, that “the teachers are not justifiable in suppressing any portion.”

9. It is the business of lecturers in medical schools, to condense and abridge the sciences which they respectively teach, to distinguish their essential and elementary principles, to sift carefully the useful from the superfluous, and to confine the scope of their teachings, as far as possible, to what is true, and profitable, and likely to be remembered and used by their hearers. It is unfortunately too true, that, “in an extended system of instruction, there is much that the student will not master, much that will have escaped his attention, much which he ought to know, that he has not learned.” The remedy appears to be, to teach him well what he can and should master, and briefly to point out to him the sources, fortunately abundant, from which he may obtain the rest.

10. Much injury is done to the cause of true learning by medical assumption, amplification and exaggeration, by premature adoption of novelties, and by tenacity of theories, personal or espoused. Students, in all former years, have expended much time in learning what it afterwards cost them both time and trouble to unlearn;—in acquiring not merely the truths of science, but the crude announcements and plausible doctrines of sanguine or ingenious men. How much time has been wasted in some of our distinguished seminaries, in acquiring the visionary, and now neglected, theories of Rush and Broussais!

11. The most commonly exaggerated branch of medical science is therapeutics. Enlightened physicians well know that many diseases are incurable, and that others are subject to laws of duration, which cannot be interrupted by

art. Yet students sometimes return from medical schools persuaded that their instructors know how to cure a large part of these diseases, and that if others are less fortunate, it is attributable to their own fault.

12. Medical teachers should keep pace with the progress of their respective sciences. Yet, in their haste for the promulgation of novelties, they should not omit to give the proper consideration to the older and more settled principles of science. Medical men are liable to commit the error of adopting premature opinions, unsound practice, and inconvenient changes of language and nomenclature, sometimes from a love of display, and sometimes from a want of self-reliance, and a fear of being thought behind the literature of their time.

13. The length of a course of lectures is not the measure of its value to the student. A course of lectures should not outlast the curiosity of its hearers, nor their average pecuniary ability to attend. Custom in this country has generally fixed the limits of these things at about four months. A comprehensive and judicious course, confined to the enforcing of necessary points, is far more profitable than a more discursive course to a wearied and diminishing audience.

14. Lectures are chiefly wanted to impress by demonstration the practical branches of science, and they are most effective in places where the facilities for such demonstrations can be commanded. Anatomy requires extensive exhibitions by the teacher, and personal dissections by the student. Chemistry and *Materia Medica* require illustrations by specimens and experiments. Pathology needs the aid of autopsies, museums, and the clinical demonstrations of large hospitals. A knowledge of *Obstetrics* is not perfected without apparatus and practice. Surgery is acquired by witnessing numerous operations, surgical diseases, illustrated explanations, and by personal practice on the dead body. Physical exploration is wholly demonstrative. A knowledge of auscultation can no more be acquired from

books, or abstract lectures, than a knowledge of music, or of individual physiognomy.

15. The intermediate period between lectures should be spent by students in active and original study, approved and confirmed by regular recitations, and by such opportunities as can be commanded, for practical, personal experience. Private schools for small classes, and the private teachings of individuals, who are suitably qualified and situated, are more advantageous for two-thirds of the year, than either the fatiguing jostle of overcrowded rooms, or the listless routine kept up by the survivors of a passive class.

16. The usefulness of a medical school depends not so much on the length of its session, as upon the amount of education, preliminary and ultimate, which it requires, the fidelity with which it exacts its own professed requisitions, and the train of healthy exertion, active inquiry, and rigid, methodical, self-regulating study, to which it introduces its pupils. The longest lectures are of little use to students who want a common education, and whose medical education does not qualify them afterwards to observe, to inquire, and to discriminate. The exacted evidence of three years of well-conducted study, is better than the exhibited ticket of a six months' course.

17. The subjects most important to be well taught in medical schools, are the elementary principles which constitute the framework of medical sciences, and the mode of thought and inquiry which leads to just reasoning upon them. After these, most attention should be given to selecting and enforcing such practical truths, as will most certainly be wanted by the young practitioner in his future career of responsibility.

18. The things to be avoided by medical teachers, are technicalities which are unintelligible to beginners—gratuitous assumptions and citations of doubtful authorities—prolix dissertations on speculative topics—excessive minuteness in regard to subjects which are intricate and but little used, and therefore destined to be speedily forgotten.

To these may be added controversies, superfluous, personal eulogiums and criminations, and all self-exaggeration, personal or local.

JACOB BIGELOW, Prof. of Materia Medica and Clinical Medicine.
WALTER CHANNING, Prof. of Midwifery and Med. Jurisprudence.
JOHN WARE, Prof. of Theory and Practice of Medicine.
JOHN B. S. JACKSON, Prof. of Pathological Anatomy.
OLIVER W. HOLMES, Prof. of Anatomy and Physiology.
HENRY J. BIGELOW, Prof. of Surgery.
E. N. HORSFORD, Prof. of Chemistry.

HOMŒOPATHY IN GREAT BRITAIN.

We are told by the advocates of homœopathy, that as a system of practice it is fast gaining popularity, and must ere long become universal. This is what is *asserted*; now let us see what is *the fact*.

To give our readers an idea of what homœopathy is in Great Britain, we condense the following from an article by JAMES INGLIS, M. D., of Halifax, England; copied into the *Western Lancet* from the *London Medical Times*.

The statistics of homœopathic practitioners are taken from the British Journal of Homœopathy, and cannot therefore be questioned by the advocates of the system.

1. OF LONDON.

The population of London amounts to about 2,200,000. The number of medical practitioners practicing in London, whose names appear in the *London Medical Directory*, is 2,571.

The number of homœopathic practitioners practicing in London, according to the accredited "list" of the British Journal of Homeopathy for Jan. 1850, is 48.

Of these forty-eight homœopathic practitioners twenty-two are not in the *London Medical Directory* at all; and of the twenty-six which remain, ten are graduates in medicine, and sixteen are surgeons or surgeon-apothecaries.

2. OF THE PROVINCES.

According to the *Provincial Medical Directory*, there are of medical practitioners practicing in the provinces, 8,327.

According to the "homœopathic list," already referred to, there are, of homœopathic practitioners practicing in the provinces, 52.

Of these fifty-two homœopathic practitioners, sixteen are not in the *Provincial Medical Directory* at all; four are in it, whose qualifications are not vouched for by the editor of the Directory: and of the remaining thirty-two whose names appear in the Directory, eighteen are graduates in medicine, and fourteen are surgeons or surgeon-apothecaries.

The number of homœopathic practitioners in Scotland appears from their "list" to be ten; in Ireland, six; and in the Channel Islands, one; making a total of 117 homœopaths to about 15,000 regular practitioners in Great Britain and Ireland.

If the numbers given above be incorrect, or understated, the error exists in the homœopaths' own list, which may be seen in the supplement to the *"British Journal of Homœopathy"* for January of the present year, from which alone I have taken my information. But since that list enumerates twenty-three M. D.'s and fifteen surgeon-apothecaries, whose names do not appear at all in either the "London" or in the "Provincial Medical Directory;" moreover, when we find included, in that list the one homœopathic practitioner in the Channel Islands, I think we may infer that that list contains as many homœopaths as the homœopaths could find.

But it may be said that we ourselves, by noticing anything so intrinsically insignificant, are elevating homœopathy to an importance which by no means belongs to it. I differ, however, from this opinion; and I consider that the journalist is the legitimate cotemporary historiographer of popular delusions; and that through the recognized journals

it is profitable to society to expose the errors of the day, and especially so in this instance, lest it should at any time be said that the medical press of England tacitly approved of anything so demonstrably absurd as homeopathy.

EDITORIAL.

OUR FOURTH VOLUME.

WITH the present number commences the fourth volume of the New Jersey Medical Reporter; and we flatter ourselves with the hope that it may prove to be still more valuable to the profession than it has hitherto been. As will be seen on the cover, the work has gone into the hands of a new publisher, who, from the very fact of his being a medical man, will throw into it a degree of interest, which could not be expected of one not connected with the profession. The mechanical execution of the present number will, we think, compare favorably with the best medical periodicals in our country, and we intend it as a fair sample of what shall follow. The *broad seal* of the New Jersey Medical Society, which embellishes the title-page, will be welcomed as a familiar friend by most of our readers, and under its sanction we hope to lay before them an amount of medical information, which may always prove to be worth at least the subscription price of our journal. We take this opportunity to urge our professional friends to send us *original communications*, as the value of a medical periodical depends very much upon the amount, and character, of the original matter it may contain. The profession of this State is fully able to sustain the work. If all the members of our District Societies would become *paying* subscribers, there could be no embarrassment in the financial department. If twenty of them would consider themselves bound, each one to contribute an essay once a-year, we would have for each number of the Reporter five original articles. These, in

addition to the transactions of the State and District Societies, bibliographical notices, and selections from other journals, would give an amount of valuable information which could not fail to be alike creditable to the profession of the State and the organ of the State Society. We therefore invite the co-operation of the friends of medical science in support of this measure, and ask for volunteers to complete a list of COLLABORATORS; and though we hope for many from the ranks of the profession in New Jersey, we shall be glad to give room to all judicious articles from any quarter. We are well aware that some of our subscribers have had cause to complain hitherto, in consequence of a want of punctuality in the distribution of the work, and perhaps from other causes; but we confidently believe that the present issue is made under more favorable prospects of success, and with a better hope of being well and promptly executed, than has existed at any period of its former history. With this belief, and with the assurance of our intention to spare no exertion to make it acceptable to those who may favor it with their patronage, we commit it to their hands.

BIBLIOGRAPHICAL NOTICES.

As it has been our custom to allow a full share of space for bibliographical notices, in former numbers of the Reporter, we intend to devote as much room to this department, in future, as the size of the journal will admit. Sometimes we have on hand more than a supply of original communications, and knowing that our correspondents are always desirous of being promptly attended to, we exclude observations of our own, upon new publications, to give them a hearing; but we anticipate an enlargement of the journal, perhaps before the completion of the present volume, if this number should prove so far acceptable to many who may receive it, who are not already on our subscription list, as to induce them to become subscribers; want of room is our only reason for omitting the

notice of several works, in the present instance. We hope that our *old friends*, who are not a few, will aid us in efforts to enlarge the subscription list, that we may increase the size and usefulness of the first and only organ of the New Jersey Medical Society.

METEOROLOGICAL RECORD.

In addition to other improvements, appended to the Reporter will be found a monthly record of the weather, kept by our friend, Adolph Frost, A. M., Librarian of Burlington College, whose indefatigable exertions in this department of science have earned for him a reputation which entitles his reports to the highest credit for accuracy. The importance of meteorological observations as a means of ascertaining the influence of the weather upon epidemics, and disease generally, is our reason for devoting the little space which they occupy, to a subject which ought to interest the profession more than it has hitherto done. We shall no doubt be able to furnish regular reports of the same kind, from the same source, with each ensuing number.

DISTRICT MEDICAL SOCIETIES.

We would respectfully suggest to our friends in the different counties, that the meetings of the District Societies offer a suitable opportunity for increasing the subscription list of the Reporter. If those who are already patrons of the work, would use their efforts to enlarge its circulation on these and other occasions, we would soon be able to increase its size, and give, for the same amount of money, a great deal more reading matter.

TO CORRESPONDENTS.

Each subscriber who may contribute to the pages of the Reporter, shall be entitled to two additional copies of the number, or numbers, in which his article may be inserted; which the publisher will forward according to order.

ECLECTIC DEPARTMENT.

Dengue — Sun Fever — Break-bone Fever. — A disease known by these several appellations has been prevalent for some weeks in many of the cities on the seaboard, and to a limited extent in some parts of the interior. It bears a very strong resemblance to the Dengue which prevailed along the coast some twenty years since. In Charleston, where it is known as the Break-bone fever, it began in the latter part of July, and in its march visited almost the entire population. The editor of the Charleston Medical Journal estimates the number of cases existing at one time (22d August) at from ten to twelve thousand. In New Orleans, where it is called "Sun Fever," the cases are also quite numerous. We learn that it prevails in Savannah also, to a considerable extent. Our own city has not entirely escaped, though the cases are not very numerous, or severe. We have heard of several cases occurring in the country.

This fever is of short duration, and rarely, if ever, proves fatal. The Journal already referred to, states that, after the most minute inquiries, in no single instance could death be referred to the disease *per se*. The fever, in some cases, is ushered in suddenly with chills, or violent pains in the head, loins, and limbs; in others, it is preceded by slight headache, soreness of the flesh, &c. The pain in the head is generally supra-orbital, extending from one temple to the other; the eyes are injected and watery, with intolerance of light. The pains in the various parts of the body and limbs are often very severe, but there are cases in which there is little pain except in the head. The appetite is destroyed, but generally the stomach in other respects seems but little affected. Sometimes there is vomiting, and diarrhoea, though most commonly the bowels are constipated. The pulse is frequent, in some cases full and hard, in others soft and compressible; the skin is hot and dry, though in a few cases perspiration continues throughout the fever. In a vast majority of cases the fever is continued, and consists

of but a single paroxysm, lasting from twenty-four to forty-eight hours; in a few instances it is remittent. Although of such short duration, the muscular prostration which accompanies the disease is very great, and the convalescence is very slow. In a large proportion of the cases, after the subsidence of the febrile symptoms, a rash very similar to that of scarlatina makes its appearance. Occasionally the eruption assumes a purpuric character.

The symptoms of the disease, as it exhibits itself in New Orleans, are similar to those which it presents in other localities. It is said, however, to have proved fatal in a few instances. Dr. Fenner states, that in New Orleans the convalescence is usually "easy and rapid."

We are unable to state what is the treatment in Charleston. In New Orleans, in young and plethoric subjects, a few ounces of blood are taken from the arm, followed by local depletion from the loins and nucha. Mild purgatives are employed in some cases, and full doses of quinine are administered as soon as the vascular excitement subsides, and the pain in the head and limbs is somewhat relieved. In our own city, we believe most cases are treated with gentle aperients, and stimulating sudorifics. Opiates, especially in the form of Dover's powder, are generally given, and their effects are highly satisfactory. Some physicians administer quinine freely during the convalescence.

A full account of the disease, we presume, will hereafter be furnished by some of the medical gentlemen in whose vicinity it has prevailed.—*Southern Medical and Surgical Journal.*

On the Influence of Iodine on the Development of the Infant.
By M. DELFRASSE.—In a memoir recently presented to the Académie des Sciences, the author proposes, in place of diminishing the size of the child by subjecting the mother to a starving regimen, as recommended by Depaul, to accomplish this end by administering iodine in the latter months of pregnancy in minute doses. He orders 1 part of

Iodine and 2 of *Iod. Pot.* to 30 of water, and gives from 6 to 8 drops of the mixture daily some time before a meal. After testing its efficacy upon some female animals, he employed this substance in two appropriate cases in his practice. In the first patient, there was great contraction of the pelvis, necessitating premature delivery on former occasions. In two successive pregnancies, she took, during the last two months, first 6, and then 8 drops of solution, every morning. Both children were born alive and did well, having all the appearance of seven-months' infants, one of them weighing 728, and the other 734 grammes less than former children had done. The only inconvenience was some diminution of development of the mother's breasts. In the second case, the patient had had five very difficult labors, none of the children living. The author ascertained that this arose from the narrowness of the pelvis, and upon the occasion of the next pregnancy, he administered the iodine. A living child was born, weighing 1250 grammes less than its predecessor.—*Bull de Thérap.*, vol. xxxviii, p. 474.

On Kermes Mineral as an Antidote to Strychnia. By M. THOREL.—M. Thorel, taking advantage of the practice of the municipal authorities in destroying stray dogs periodically by means of strychnia and nux vomica, instituted some experiments upon the antidotal power of kermes, having already observed the reactions which ensue on bringing a sulphuret in contact with strychnia. Although dogs commencing to exhibit the symptoms of strychnia-poisoning, cannot, if they have been fasting, be made to vomit even by large doses of tartar emetic; yet by combining with it some kermes, free purging and vomiting are produced, and if the space of time has not been too prolonged, the animal recovers. He believes that the instances in which he tried it justify him in recommending, that in case of poisoning by strychnia in the human subject, the following dose should be given:—*Kermes* 15 grains, *Tart. Emet.* gr. 1½, water and syrup of buckthorn, 2 oz. A second or even a third dose may be given.

A series of chemical experiments led him to the conclusion that the action of the substance is twofold. A portion is decomposed, and forms, with the strychnia existing in the stomach as a lactate of strychnia, an insoluble sulphuret, while the undecomposed portion aids the tartar emetic in inducing explosive action.

MM. Bouchardat and Gobley, reporting on this paper, regard it as of some importance. They observe, however, that experiments out of the body show that the iodated iodide of potassium (*iodure de potassium iodurée*) exerts a far more powerful effect in precipitating an absolutely insoluble compound with strychnia, than kermes does. The relative efficacy of the two substances can only be tested by experience; and experiments on animals require to be extensively repeated, lest we may be deceived by exceptional circumstances. It is possible that all the advantages in M. Thorel's arose from the evacuations which were induced by the antimony and buckthorn.—*Journal de Pharmacie et de Chimie*, 3 Sér., xvii., pp. 185-91.

On Precocious Menstruation. By M. PAUL DUBOIS.—While drawing attention to a woman who had commenced menstruating at 9½, M. Dubois observed that warmth of climate is not the only circumstance influencing menstrual precocity. One of the most influential circumstances is the condition of the uterus itself, and this is especially seen from the fact, that both precocity and tardiness of menstruation are frequently hereditary, the influence of heredity upon the intimate structure, and even the outward conformation of the organs, being well known. On several occasions he has found the menses become established very early or late, at much the same epoch in different members of the same family. Another influencing circumstance is the moral condition in which girls live. In towns and workshops, where young girls are constantly brought into company with individuals of the opposite sex, the menses appear much earlier than they do in girls who lead such

different lives in this respect in the country.—*Gaz. des Hôpitaux*, No. 45.

The Kite-tail Plug.—This, which has long been employed by M. Bretonneau of Tours, M. Troussau regards as excellent in uterine hemorrhages, being both easy of application and withdrawal. It is formed of a thread about forty feet long, to which, at intervals of about six or seven inches, pieces of carded cotton (to be oiled before using the plug) are attached. M. Bretonneau prefers it to all other means of plugging in epistaxis.—*L'Union Médicale*, No. 25.

On the Destruction of the Odor of Musk by Camphor.—The fact of musk, when mixed with some other substances (as *sulph.*, *antim.*, *aurat.*, syrup of almonds, wax, &c.), almost entirely losing its odor, has often been observed; but the attention of M. Fleischmann has been recently more particularly drawn to the subject, by his finding that a powder, composed of musk, camphor, and sugar, lost its odor after mixing. Repeating the experiment, he found that, as often as camphor was commingled with musk, it exerted this effect upon it; so, too, when musk was given with an *oleo-saccharum*, as cinnamon, &c., its odor became lost.—*Buchner's Repert.*, Band iv. p. 262.

Prolonged Tepid Baths as Sedatives.—M. Rostan, while ordering a tepid bath for two hours, to allay palpitation in a case of organically diseased heart, for which purpose digitalis had been of no avail, observed that he usually derives far more advantage from the employment of prolonged tepid baths as sedatives, than from the use of any internal medicines whatever.—*Gazette des Hôpitaux*, No. 43.

Removal of the Bitter Taste of Quinine.—Dr. Thomas states that accident led him to the discovery that the bitter of quinine may be effectually concealed, while the efficacy of

the drug is retained, by combining it with tannic acid; ten grains may thus be deprived of its taste by $1\frac{1}{2}$ grs. of the acid.—*Amer. Jour. Med. Sc. N. S.*, No. 38, p. 541.

On Subcutaneous Punctures in Articular Rheumatism. By M. GUERIN.—Frequently joints which have become invaded by an attack of rheumatism long remain the seat of most obstinate pain. On a close examination, we may assure ourselves that this pain is neither uniform nor general, but partial and localized at certain points. On handling, the part, we can feel opposite the immediate seat of pain, little knotty points which are exquisitely sensible to the touch. Such points exist even during the acute stage of rheumatism, but are much more easily recognized and isolated in the subacute stage. It is towards these points that the subcutaneous punctures should be directed, taking care, as in the ordinary application of the method, to raise a fold of the skin. The point of the instrument divides and liberates this tumefied and, so to say, indurated part; and the instant this is effected the pain ceases, and pressure can detect no trace of the nodosity thus destroyed. Whether a few drops of blood flow or not, the same result follows, so that the practice does not operate as an antiphlogistic. It is in fact only a *debridement*.—*Gaz. Méd.*, 1850, No. 22.

On very minute Doses of Tartar-Emetic, in Phthisis and Asthma. By M. BERNARDEAU.—In vol. xxxi. of the *Bull. de Thérap.*, M. Bernardeau gave an account of the great benefit he has seen derived from the administration of minute doses of tartar-emetic in the hectic of phthisis. Since that period he has used it in other stages of tubercularization, and in several cases of asthma, with excellent effects. He gives from three to six pills in the twenty-four hours, each containing $1-25$ th of a grain. By their use, the cough, dyspnoea, and inordinate action of the heart becomes calmed, and in fact all the good effects of morphia, without its inconveniences, seem to be produced.—*Bull. de Thérap.*, vol. xxxvii., p. 311.

MетеoroLOGICAL REPORT FOR JUNE, 1860.

At BURGESSON, NEW JERSEY—Lat. 40° N.—Long. 75° 12' W.—Alt. of Bar. above Delaware River, 20 feet.

1st.	Barometer.	Thermometer.	The Wind.						The Clouds.						REMARKS.
			Sun.	3	9	Sun.	3	9	Sun.	3	9	Sun.	3	9	
June.	rise.	P.M.	P.M.	P.M.	P.M.	Sun.	P.M.	P.M.	Sun.	P.M.	P.M.	Sun.	P.M.	P.M.	
1	30.04	30.06	30.06	63	63	65	65	65	65	65	65	65	65	65	1
2	29.66	29.70	29.70	56	56	64	64	64	64	64	64	64	64	64	2
3	29.74	29.80	29.84	54	54	64	64	64	64	64	64	64	64	64	3
4	29.84	29.89	29.99	67	67	74	74	74	74	74	74	74	74	74	4
5	30.04	30.08	30.06	67	67	80	80	80	80	80	80	80	80	80	5
6	30.15	30.00	30.00	59	59	64	64	64	64	64	64	64	64	64	6
7	29.98	29.98	29.60	61	61	73	73	73	73	73	73	73	73	73	7
8	29.70	29.60	29.60	67	67	77	77	77	77	77	77	77	77	77	8
9	29.53	29.52	29.45	67	67	82	82	82	82	82	82	82	82	82	9
10	29.43	29.45	29.48	64	64	68	68	68	68	68	68	68	68	68	10
11	29.64	29.60	29.59	65	65	69	69	69	69	69	69	69	69	69	11
12	29.90	29.98	29.94	61	61	69	69	69	69	69	69	69	69	69	12
13	29.77	29.77	29.74	60	60	65	65	65	65	65	65	65	65	65	13
14	29.75	29.75	29.76	63	63	69	69	69	69	69	69	69	69	69	14
15	29.74	29.74	29.74	61	61	70	70	70	70	70	70	70	70	70	15
16	29.80	29.80	29.80	66	66	75	75	75	75	75	75	75	75	75	16
17	29.90	29.92	29.90	66	66	68	68	68	68	68	68	68	68	68	17
18	29.60	29.68	29.68	64	64	64	64	64	64	64	64	64	64	64	18
19	29.66	29.67	29.57	61	61	69	69	69	69	69	69	69	69	69	19
20	29.88	29.89	29.75	71	71	84	84	84	84	84	84	84	84	84	20
21	29.50	29.59	29.52	72	72	88	88	88	88	88	88	88	88	88	21
22	29.52	29.59	29.52	70	70	82	82	82	82	82	82	82	82	82	22
23	29.70	29.60	29.70	71	71	84	84	84	84	84	84	84	84	84	23
24	29.69	29.75	29.74	69	69	84	84	84	84	84	84	84	84	84	24
25	29.74	29.79	29.78	63	63	79	79	79	79	79	79	79	79	79	25
26	29.78	29.80	29.81	66	66	82	82	82	82	82	82	82	82	82	26
27	29.75	29.74	29.70	61	61	81	81	81	81	81	81	81	81	81	27
28	29.63	29.63	29.63	70	70	86	86	86	86	86	86	86	86	86	28
29	29.60	29.62	29.61	75	75	86	86	86	86	86	86	86	86	86	29
30	29.60	29.70	29.65	72	72	86	86	86	86	86	86	86	86	86	30

The force of the wind is estimated in numbers, 0 being a calm, 1 a very gentle breeze, 2 a gentle breeze, 3 a fresh breeze, 4 a strong wind, 5 a very strong wind, 6 a violent storm, &c. The numbers are put after the course—that is, for example, if the wind is from the S. W. strong, it is set down SW4. In clearness of the sky, 0 represents entire clearness, 10 entire darkness. The Velocity of the Clouds from 1 to 10 also.

METEOROLOGICAL REPORT FOR JULY, 1850.

At BURLINGTON, NEW JERSEY—Lat. 40° N.—Long. 75° 12' W.—Alt. of Bar. above Delaware River, 20 feet.

1850.	Barometer.	Thermometers.						The Wind.						The Clouds.					
		July.	Sun. rise	3 P.M.	9 P.M.	3 Sun. rise	9 P.M.												
1	30.03	30	68	69	68	71	62	73	6	10	10	9	9	8	10	9	10		
2	30.05	29	68	69	69	74	62	73	6	2	9	2	2	8	10	2	10		
3	29.93	28	68	69	69	68	69	73	8	10	9	10	10	10	10	10	10		
4	29.69	29	64	64	64	74	69	73	9	9	9	9	10	10	10	10	10		
5	29.09	28	64	64	64	70	69	73	9	8	9	9	10	10	10	10	10		
6	29.57	29	60	59	53	77	69	74	6	10	10	10	10	4	1	1	1		
7	29.74	29	74	74	73	69	64	72	9	10	10	10	10	10	10	10	10		
8	29.73	29	72	72	73	66	64	70	5	10	10	10	10	10	10	10	10		
9	29.73	29	73	73	73	60	64	70	5	10	10	10	10	5	5	5	5		
10	29.73	29	69	69	69	64	63	65	10	10	10	10	10	10	10	10	10		
11	29.50	29	60	60	60	53	62	65	10	10	10	10	10	10	10	10	10		
12	29.88	29	60	60	60	53	61	70	10	10	10	10	10	10	10	10	10		
13	29.89	29	58	58	58	60	61	71	10	9	7	10	10	10	10	10	10		
14	29.77	29	65	65	65	76	69	73	8	6	10	10	10	10	10	10	10		
15	29.76	29	60	59	58	73	60	71	8	2	8	8	8	8	8	8	8		
16	29.89	29	63	63	63	76	63	63	2	8	8	8	8	8	8	8	8		
17	29.58	29	58	58	58	75	60	73	5	2	2	2	2	2	2	2	2		
18	29.72	29	62	62	62	76	70	73	73	7	7	7	7	7	7	7	7		
19	29.20	29	15	15	15	25	71	72	1	9	9	9	9	9	9	9	9		
20	29.50	29	62	62	63	70	59	73	10	9	9	9	9	9	9	9	9		
21	29.64	29	70	70	70	67	54	72	7	9	8	8	8	8	8	8	8		
22	29.70	29	74	74	74	70	54	72	5	10	10	10	10	10	10	10	10		
23	29.74	29	58	58	58	58	60	64	72	5	10	10	10	10	10	10	10		
24	29.89	29	64	64	64	64	65	65	73	1	10	10	10	10	10	10	10		
25	29.73	29	73	73	74	73	91	92	10	8	8	8	8	8	8	8	8		
26	29.71	29	62	62	60	69	70	70	5	5	5	5	5	5	5	5	5		
27	29.60	29	60	59	59	60	68	70	70	4	4	4	4	4	4	4	4		
28	29.70	29	71	71	71	75	70	70	88	9	9	9	9	9	9	9	9		
29	29.65	29	66	66	65	70	91	78	10	9	9	9	9	9	9	9	9		
30	29.65	29	64	64	65	70	91	78	10	10	10	10	10	10	10	10	10		
31	29.65	29	72	72	69	75	88	88	75	10	10	10	10	10	10	10	10		

REMARKS.

1. Thunder with rain.

2. Heavy rain in the night.

3. Very close.

4. Alt. rising.

5. Thunder storm for fifteen minutes with heavy rain.

6. Lightning and thunder with rain.

7. Rainy.

8. Misty.

9. Thunder.

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METEOROLOGICAL REPORT FOR AUGUST, 1850.

At BURLINGTON, NEW JERSEY—Lat. 40° N.—Long. 75° 12' W.—Altitude of Bar, above Delaware River, 20 feet.

150.	Barometer.	Thermometer.	Clouds.						Wind.						Sky.						Remarks.					
			Sun. rise.	3 P.M.	9 P.M.																					
1	30.00	30.73	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	1st. Lightning and thunder. Heavy rain.						
2	30.00	30.66	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	10	10	10	10	10	10	
3	30.04	30.60	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	10	10	10	10	10	10	
4	30.20	30.60	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	10	10	10	10	10	10	
5	30.00	30.64	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	29.00	29.60	29.36	10	10	10	10	10	10	
6	30.05	30.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	10	10	10	10	10	10	
7	30.70	30.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	10	10	10	10	10	10	
8	30.70	30.75	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	10	10	10	10	10	10	
9	30.70	30.60	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	29.56	10	10	10	10	10	10	
10	30.60	30.59	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	10	10	10	10	10	10	
11	30.60	30.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	29.77	10	10	10	10	10	10	
12	30.70	30.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	10	10	10	10	10	10	
13	30.70	30.65	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
14	30.60	30.40	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
15	30.60	30.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	10	10	10	10	10	10	
16	30.60	30.66	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	29.73	10	10	10	10	10	10	
17	30.60	30.60	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	10	10	10	10	10	10	
18	30.57	30.56	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	29.54	10	10	10	10	10	10	
19	30.70	30.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	10	10	10	10	10	10	
20	30.70	30.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	10	10	10	10	10	10	
21	30.70	30.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	10	10	10	10	10	10	
22	30.70	30.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	29.65	10	10	10	10	10	10	
23	30.60	30.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	29.60	10	10	10	10	10	10	
24	30.55	30.55	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	29.58	10	10	10	10	10	10	
25	30.50	30.50	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	29.55	10	10	10	10	10	10	
26	30.60	30.60	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
27	30.60	30.60	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
28	30.60	30.60	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
29	30.60	30.60	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
30	30.60	30.60	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	10	10	10	10	10	10	
31	30.50	30.50	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	29.74	10	10	10	10	10	10	